CONSTRUCTION NEWS

Supplement to ENGINEERING NEWS. 220 Broadway, New York, June 28, 1906.

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CONSTRUCTION NEWS.

PLANS AND SPECIFICATIONS ON FILE.

The following Plans (P.), Specifications (S.), and Bidding Sheets (B. S.) may be seen at the office of The Engineering News Publishing Co., 220 Broadway, New York:

Bids close.	Work.	Place.	On file.	See issue.
June				
30	Piers	Philadelphia, Pa.	S.	6- 7
*30	Tunnel	New Zealand	P. S. & B. S.	5-31
30	Railwy grading	Vaughan, N. C.	S.	6-14
July				
*2	Sewer sys.	Cape Girardeau, Mo.	S. & B. S.	5-21
*2	Sewer system	Cape Girardeau	P. S. & B. S.	5-24
*6	Wells, etc.	Garden City, Kans.	P., S. & B. S.	6-28
*7	Cement	Chicago, Ill.	S.	6-21
7	Pumps	Garden City, Kans.	P. & S.	5-31
9	Electric mchy.	Williston, N. Dak.	S. & B. S.	6-28
*10	Dam	Cody, Wyo.	P., S. & B. S.	6- 7
*11	Macadam	Camden, N. J.	P.	6-21
*13	Bridge	Brandon, Man.	P. & S.	6-14
14	Underground cables	Phila., Pa.	S.	6-28
21	Air compressors	Charleston, S. C.	S.	6-28
*24	Steel bars	Billings, Mont.	S.	6-21
*31	Canal	Browning, Mont.	S.	6- 7
Aug.				
*2	Reservoir	Altoona, Pa.	S. & B. S.	6-21
*30	Tunnel	Salt Lake City, Utah	P., S. & B. S.	6-21
Sept.				
15	Hotel bldg.	Manila, P. I.	S.	3-29

*Work advertised in Engineering News.

LIST OF CONTRACTS PENDING.

LIGHT, HEAT AND POWER PLANTS.

Bids close.	Work.	Place.	On file.	See issue.
July 2.	Gas plant	Winnetka, Ill.		June 21
	Advertised, Eng. News, June 21 and 28.			
July 2.	Electric plant materials	Tecumseh, Okla.		June 28
July 5.	Water power for sale	Kenora, Ont.		Mar. 15
	Advertised, Eng. News, Mar. 15.			
July 6.	Heating, etc.,	Hudson, N. Y.		June 28
July 9.	Elec. machinery	Williston, N. Dak.		June 21
July 10.	Supplies	Philadelphia, Pa.		June 21
July 10.	Electric plant	Nashwauk, Minn.		June 28
July 11.	Heating	Sherman, Tex.		June 14
July 17.	Wiring system	Laredo, Tex.		June 21
	Advertised, Eng. News, June 21 and 28.			

BRIDGES.

June 30.	Four bridges	Chatham, Ont.	June 21
June 30.	Bridges, St. John, N. B.		Apr. 12
June 30.	Bridge, Hood River, Ore.		June 14
June 30.	Abutments and bridge, Souris, Man.		June 28
June 30.	Bridge, Aultsville, Ont.		June 28
June 30.	Two bridges, Independence, Kans.		June 28
July 1.	Four steel bridges, Leland, La.		May 24
July 2.	Steel bridge, Lakeport, Cal.		May 31
July 2.	Bridge, etc., Tipton, Ind.		June 28
July 3.	Three bridges, Holton, Kans.		June 28
July 3.	Bridges, Kokomo, Ind.		June 28
July 3.	Bridge, Great Neck (L. I.), N. Y.		June 21
	Advertised, Eng. News, June 21 and 28.		
July 4.	Bridges, Vicksburg, Miss.		June 21
July 6.	Three bridges, Xenia, Ohio.		June 28
July 6.	Three bridges, New Castle, Pa.		June 26
July 7.	Abutment, Cleveland, Ohio.		June 28
July 7.	Steel bridge, Mitchell, S. Dak.		June 21
July 9.	Bridge, New York, N. Y.		June 28
July 10.	Bridge repairs, Westfield, Mass.		June 28
	Advertised, Eng. News, June 28.		
July 13.	Steel bridge, Brandon, Man.		June 14
	Advertised, Eng. News, June 14 to 28.		
July 16.	Two bridges, Portsmouth, Ohio.		June 21
July 18.	Seven bridges, Cornwall, Ont.		June 14
No date.	Substructure, Prince Albert, Sask.		June 21

BUILDINGS.

June 29.	School, Chicago, Ill.		June 28
June 30.	Hotel, Evansville, Ind.		June 21
July 1.	Court-house, Monticello, Ga.		June 7
July 2.	School, Cleveland, Ohio.		June 14
July 3.	Building, Binghamton, N. Y.		June 28
	Advertised, Eng. News, June 28.		
July 6.	Buildings, Hudson, N. Y.		June 28
July 6.	Jail, Whitesburg, Ky.		June 21
July 7.	Cell work, etc., Washington, D. C.		June 28
	Advertised, Eng. News, June 28.		
July 10.	Alterations, Chicago, Ill.		June 21
July 10.	Building, Garden City, Kans.		June 21
July 14.	Building, Seattle, Wash.		June 14
July 14.	Brick, Washington, D. C.		June 28
	Advertised, Eng. News, June 28 to July 12.		
Sept. 15.	Hotel, Manila, P. I.		Mar. 29

WATER SUPPLY AND IRRIGATION.

June 29.	Conduit & reservoir, Carney's Point, N. J.		June 7
	Advertised, Eng. News, June 7 to 21.		
July 1.	Water-works, Hailey, Idaho		May 31
July 2.	Pipe laying, Saranac Lake, N. Y.		June 14
	Advertised, Eng. News, June 14 and 21.		
July 2.	Water mains, Braintree, Mass.		June 21
	Advertised, Eng. News, June 21 and 28.		
July 2.	Pipe line, Trinidad, Colo.		June 21
	Advertised, Eng. News, June 21 and 28.		
July 2.	Boilers, etc., Albany, N. Y.		June 28
July 2.	Water-works, Roberts, Ill.		June 28
July 2.	Water-works materials, Tecumseh, Okla.		June 28
July 2.	Laying mains, Sacramento, Cal.		June 28
July 2.	Water system, Kankakee, Ill.		June 28
July 3.	Pipe, etc., Otisville, N. Y.		June 28
July 3.	Water-works, Regina, Sask.		June 21
July 5.	Water-works material, Wanette, Okla.		June 28
July 6.	Water system, Chicago, Ill.		June 14
	Advertised, Eng. News, June 14 to 28.		
July 7.	Pumps, Garden City, Kans.		May 17
	Advertised, Eng. News, May 17 to June 21.		
July 7.	Water valves, Washington, D. C.		June 21
	Advertised, Eng. News, June 21 and 28.		
July 7.	Water mains, Laurinburg, N. C.		June 21
July 8.	Pipe, Vancouver, B. C.		June 14
July 9.	Pumping station, Williston, N. Dak.		June 14
July 9.	Engine, Pawtucket, R. I.		June 7
	Advertised, Eng. News, June 7 to 21.		
July 9.	Water-works, Leigh, Nebr.		June 21
July 9.	Deep well, Jackson, Mo.		June 28
	Advertised, Eng. News, June 28.		
July 12.	Water system, Carencro, La.		June 14
July 12.	Water-works, Shelby, Miss.		June 28
	Advertised, Eng. News, June 28 and July 5.		
July 14.	Pipe system, New Philadelphia, Ohio.		June 21
July 16.	Water system, Spring Lake, Mich.		June 28
	Advertised, Eng. News, June 28 to July 12.		
July 18.	Pumping station, etc., Columbus, Ohio.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 19.	Dam, Lancaster, Pa.		June 21
	Advertised, Eng. News, June 21 and 28.		
Aug. 1.	Water-works, Glasgow, Mont.		June 21
Aug. 1.	Artesian wells, Famagusta, Egypt		May 31
	Advertised, Eng. News, May 31 to June 21.		
Aug. 2.	Storage reservoir, Altoona, Pa.		June 21
	Advertised, Eng. News, June 21 to July 19.		
Aug. 7.	Pumping plant, Billings, Mont.		June 21
	Advertised, Eng. News, June 21 to July 5.		
Sept. 5.	Two reservoirs, New Orleans, La.		June 21
	Advertised, Eng. News, June 21 to Aug. 30.		
Oct. 15.	Water-works, Rio Grande do Sul, Brazil.		May 31

SEWERAGE.

June 29.	Sewer, Norfolk, Nebr.		June 21
	Advertised, Eng. News, June 21 and 28.		
June 30.	Sewers, etc., Collingwood, Ohio		June 21
June 30.	Sewer, Medford, Ore.		June 14
June 30.	Sewers, Mayville, N. Dak.		June 28
June 30.	Sewers, Harrisburg, Ill.		June 28
July 2.	Sewers, Muscatine, Ia.		June 28
July 2.	Sewers, Saranac Lake, N. Y.		June 14
	Advertised, Eng. News, June 14 and 21.		
July 2.	Sewer, Des Moines, Iowa		June 21
July 3.	Sewers, Regina, Sask.		June 21
July 3.	Sewer work, Waterbury, Conn.		June 14
July 3.	Sewer, Marion, Ind.		June 28
July 5.	Sewer, Guthrie, Okla.		June 28
July 5.	Sewers, Woonsocket, R. I.		June 21
	Advertised, Eng. News, June 21 and 28.		
July 6.	Sewers, etc., New York, N. Y.		June 21
July 6.	Sewers, Moorhead, Minn.		June 28
July 6.	Sewer, Elkhart, Ind.		June 28
July 7.	Sewers, Laurenburg, N. C.		June 21
July 9.	Sewers, Wadsworth, Ohio.		June 28
	Advertised, Eng. News, June 28.		
July 9.	Sewers, New York, N. Y.		June 28
July 9.	Sewer, Oil City, Pa.		June 28
	Advertised, Eng. News, June 28.		
July 10.	Sewer, Ashtabula, Ohio.		June 28
July 10.	Sewers, New York, N. Y.		June 28
July 10.	Sewers, Fairbury, Nebr.		June 21
	Advertised, Eng. News, June 21 and 28.		
July 10.	Sewer, Two Rivers, Wis.		June 21
July 12.	Outlet, Cleveland, Ohio.		June 28
July 12.	Sewers, Shelby, Miss.		June 28
	Advertised, Eng. News, June 28 and July 5.		
July 13.	Sewers, Madison, Wis.		June 28
July 14.	Sewers, Marianna, Ark.		June 28
July 16.	Sewer pumps, Framingham, Mass.		June 28
	Advertised, Eng. News, June 28.		
July 18.	Sewers, Fort Smith, Ark.		June 28
	Advertised, Eng. News, June 28 and July 5.		
July 19.	Concrete sewer, Lancaster, Pa.		June 21
	Advertised, Eng. News, June 21 and 28.		
No date.	Sewers, New Philadelphia, Ohio.		June 21
No date.	Sewer, Evansville, Ind.		June 28

STREETS AND ROADS.

June 29.	Paving, Indiana, Pa.		June 21
	Advertised, Eng. News, June 21.		
June 29.	Paving, Indiana, Pa.		June 14
	Advertised, Eng. News, June 14.		
June 29.	Roads, Albany, N. Y.		June 7
	Advertised, Eng. News, June 7 to 21.		
June 30.	Roads, Albany, N. Y.		June 7
	Advertised, Eng. News, June 7 to 21.		
June 30.	Sidewalks, Terrace Park, O.		June 14
June 30.	Macadam, etc., Concord, N. H.		June 21
June 30.	Gravel road, Preston, Conn.		June 28
July 2.	Grading, San Diego, Cal.		June 28
July 2.	Gravel road, Brookville, Ind.		June 28
July 2.	Paving, Fulton, W. Va.		June 28
July 2.	Paving, Carbondale, Pa.		June 28
	Advertised, Eng. News, June 28.		
July 2.	Improvements, Albany, N. Y.		June 28
July 2.	Gravel road, Columbus, Ind.		June 21
July 2.	Paving, Glens Falls, N. Y.		June 21
	Advertised, Eng. News, June 21 and 28.		
July 2.	Gravel road, Greencastle, Ind.		June 14
July 2.	Gravel road, Crownpoint, Ind.		June 14
July 2.	Grading, etc., Cincinnati, O.		June 14
July 2.	Macadam, Clinton, Tenn.		June 14
July 3.	Macadam, Spencer, Ind.		June 14
July 3.	Stone road, Paulsboro, N. J.		June 14
	Advertised, Eng. News, June 14 to 28.		
July 3.	Grading and paving, Waterbury, Conn.		June 7
	Advertised, Eng. News, June 7 to 21.		
July 3.	Paving, Regina, Sask.		June 21
July 3.	Macadam, Versailles, Ind.		June 28
July 3.	Grading, etc., Mansfield, Ohio.		June 28
July 3.	Paving, Savannah, Ga.		June 28
July 3.	Grading, Waterbury, Conn.		June 28
July 5.	Paving, etc., Guthrie, Okla.		June 28
July 5.	Gravel roads, Covington, Ind.		June 28
July 5.	Paving, etc., Baltimore, Md.		June 28
July 6.	Walks, Grand Valley, Ont.		June 28
July 6.	Paving, Buffalo, N. Y.		June 28
July 6.	Paving, etc., New York, N. Y.		June 28
July 6.	Grading, etc., Columbia, Conn.		June 28
July 6.	Grading, etc., Salt Lake City, Utah.		June 21
	Advertised, Eng. News, June 21 and 28.		
July 7.	Paving, etc., Jefferson City, Mo.		June 28
July 7.	Gravel road, Vincennes, Ind.		June 28
July 7.	Improvement, Cleveland, Ohio.		June 28
July 9.	Macadam, Mount Holly, N. J.		June 21
July 9.	Road improvement, Pittsburg, Pa.		June 21
July 9.	Paving, etc., Altoona, Pa.		June 21
	Advertised, Eng. News, June 21.		
July 10.	Macadam, Bedford, N. Y.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 11.	Macadam, Freehold, N. J.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 11.	Improvement, Delaware, Ohio		June 21
July 11.	Grading, etc., Kenton, Ohio.		June 28
July 11.	Gravel roads, Concord, N. H.		June 28
July 12.	Grading, etc., New York, N. Y.		June 28
July 14.	Improvement, Baltimore, Md.		June 28
July 18.	Paving, Fort Smith, Ark.		June 28
	Advertised, Eng. News, June 28 and July 5.		
July 18.	Improvements, Delaware, Ohio		June 28
July 27.	Walks, etc., Fortress Monroe, Va.		June 28
	Advertised, Eng. News, June 28 to July 19.		

MISCELLANEOUS CONTRACTS.

June 29.	Retaining walls, Catlettsburg, Ky.		May 31
	Advertised, Eng. News, May 31 to June 21.		
June 29.	Canal, Portland, Ore.		May 10
	Advertised, Eng. News, May 10 to June 7.		
June 29.	Screens, Fort Monroe, Va.		June 21
	Advertised, Eng. News, June 21 and 28.		
June 30.	Superstructure, Chicago, Ill.		May 31
	Advertised, Eng. News, May 31 to June 21.		
June 30.	Piers, Philadelphia, Pa.		June 7
June 30.	Sea wall, Fort Monroe, Va.		June 7
	Advertised, Eng. News, June 7 to 28.		
June 30.	Railway grading, Vaughan, N. C.		June 14
	Advertised, Eng. News, June 14.		
July 1.	Concrete dam, Womelsdorf, Pa.		June 28
July 2.	Dike, Columbia, La.		June 28
July 2.	Ditch, Eldora, Iowa		June 28
July 3.	Ditch work, Muscatine, Iowa.		June 28
July 5.	Tunnel changes, Chicago, Ill.		June 28
July 5.	Dikes, New York, N. Y.		June 14
	Advertised, Eng. News, June 14 and 21.		
July 5.	Post-office boxes, Washington, D. C.		June 21
	Advertised, Eng. News, June 21 and 28.		
July 6.	Drainage ditches, Poplar Bluff, Mo.		June 28
July 7.	Portland cement, Chicago, Ill.		June 21
	Advertised, Eng. News, June 21 and 28.		
July 7.	Wharf, Fort Monroe, Va.		June 14
	Advertised, Eng. News, June 14 to July 5.		
July 7.	Pumps, Garden City, Kans.		May 31
July 9.	Tunnel, Arthur's Pass, New Zealand.		June 7
	Advertised, Eng. News, June 7 to July 5.		
July 9.	Pumping station, Williston, N. Dak.		June 14
July 10.	Dam, Cody, Wyo.		June 7
	Advertised, Eng. News, June 7 to 28.		
July 10.	Dredging, Columbus, Ohio.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 10.	Concrete abutments, Columbus, O.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 10.	Aqueducts, Columbus, Ohio.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 10.	Locks, Columbus, Ohio.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 10.	Engineering supplies, Panama.		June 28
July 10.	Ditch, Pocahontas, Iowa		June 28
July 11.	Canal, Cody, Wyo.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 11.	Butterfly dam, Chicago, Ill		May 17
	Advertised, Eng. News, May 17.		
July 11.	Dredging, Detroit, Mich.		June 14
	Advertised, Eng. News, June 14 to July 5.		
July 12.	Rebuilding locks, Columbus, Ohio.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 12.	Portland cement, Columbus, Ohio.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 14.	Canals, Leesburg, Fla.		June 28
July 16.	Dredging, Biloxi, Miss.		June 21
	Advertised, Eng. News, June 21 to July 12.		
July 16.	Monument, Palestine, Tex.		June 14
July 19.	Dredging, Boston, Mass.		June 21
	Advertised, Eng. News, June 21 to July 12.		
July 19.	Concrete dam, Roscoe, Ohio.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 19.	Dredging, Roscoe, Ohio.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 21.	Air compressors, Charleston, S. C.		June 28
July 24.	Steel, Olongapo, P. I.		June 28
July 24.	Steel bars, Billings, Mont.		June 21
	Advertised, Eng. News, June 21 to July 5.		
July 24.	Canal widening, Detroit, Mich.		June 7
	Advertised, Eng. News, June 7.		
July 25.	Canal, Albany, N. Y.		June 28
July 27.	Repairing dam, Cincinnati, Ohio.		June 28
	Advertised, Eng. News, June 28 to July 19.		
July 31.	Canal, Browning, Mont.		June 7
	Advertised, Eng. News, June 7 to July 5.		
Aug. 7.	Pumping plant, Billings, Mont.		June 21
	Advertised, Eng. News, June 21 to July 19.		
Aug. 30.	Tunnel, Boston, Mass.		June 21
	Advertised, Eng. News, June 21 to July 26.		
Aug. 30.	Tunnel, Salt Lake City, Utah.		June 21
Sept. 4.	Railway supplies, Siam (Foreign)		Apr 26
	Advertised, Eng. News, Apr. 26.		
Sept. 4.	Cars, Bangkok, Siam.		May 31
	Advertised, Eng. News, May 3 and 10.		
Sept. 12.	Locomotives, Bangkok, Siam		May 31
	Advertised, Eng. News, May 3 and 10.		
Oct 15.	Drains, Rio Grande do Sul, Brazil.		May 31
No date.	Steam shovel work, Davenport, Iowa.		June 28
	Advertised, Eng. News, June 28.		

CIVIL SERVICE EXAMINATIONS.

June 30.	Rodman, Albany, N. Y.		June 7
	Advertised, Eng. News, June 7.		
June 30.	Bridge Designer, Albany, N. Y.		June 7
	Advertised, Eng. News, June 7.		
June 30.	Bridge Draftsman, Albany, N. Y.		June 7
	Advertised, Eng. News, June 7.		
June 30.	Arch. Draftsman, Albany, N. Y.		June 7
	Advertised, Eng. News, June 7.		
July 5.	R. R. Transportation Agt., Wash., D. C.		June 7
July 5.	Hospital Interne, Panama		June 7
July 5.	Arch. Draftsman, Philippine Islands.		June 7
July 5.	Civil Engr., Hot Springs, Ark.		June 7
July 5.	Arch. Draftsman, Tompkinsville, N. Y.		June 21
July 5.	Pumping Engr., Fort McPherson, Ga.		June 21
July 6.	Medical Interne, Washington, D. C.		June 7
July 7.	Leveler, Albany, N. Y.		June 21
July 7.	Asst. Civil Engr., Albany, N. Y.		June 21
July 11.	Surveyor, Philippine Islands		June 21
July 11.	Irrigation Draftsman, Arizona		June 21
July 18.	Engr. and Miller, Arizona		June 21

Proposed Work

ENGINEERING NEWS desires to obtain the **EARLIEST POSSIBLE RELIABLE INFORMATION** concerning all projected work. We will appreciate any items that you may send us. Copies containing such information will be mailed to you, upon request.

Address, **Construction News Department**

RAILWAYS.

The names of parties awarded contracts are printed in capital letters.

ATLANTA & ST. ANDREW'S BAY.—Work on this road, which had been temporarily abandoned, has been resumed. The line as planned will be 265 miles long, extending from Atlanta, Ga., to Panama City, Fla., on the Gulf of Mexico. Part of the road has already been constructed, and other portions are in process of construction at this time. Leaving Panama City, the road runs almost due north to Cottondale, Fla., from Cottondale to Dothan, Ala., from Dothan to Opelika, Ala., and from Opelika to Atlanta. The section between Dothan and Cottondale is practically completed. The officers are: A. B. Steele, Pres.; G. H. Purvis, Vice-Pres., and P. J. Domer, Gen. Mgr.

ATCHISON, TOPEKA & SANTA FE.—The reports that this company will abandon its line across the Raton Mountains in Colorado as soon as the Belden cut-off is completed are denied by the officials. It is announced that the Colorado line is to be considerably improved, and will still be used in connection with California traffic. A tunnel is to be constructed through the mountains at a much lower point than the present high grade of the line, which is reached by a switchback. The new bore will be made wide enough for a double track. It will be nearly a mile long, and will cost $1,000,000 or more to construct. Work on the tunnel will begin at once. J. Dunn, Chicago, is Ch. Engr.

BUFFALO, ROCHESTER & PITTSBURG.—According to press reports, this company has a corps of engineers in the field, surveying the route for a new line through Loyalhanna, Bell, Washington and Franklin townships, in the vicinity of New Texas, where a connection with the Pittsburg, Bessemer & Lake Erie R. R. is to be made. This will complete the projected line from the Clarksburg & Iselin branch of the Buffalo, Rochester & Pittsburg. J. M. Floerch, Rochester, is Ch. Engr.

CALIENTE & PIOCHE.—This company has been chartered in Utah to build a 30-mile railroad from Caliente to Pioche, in Utah. The incorporators are: W. H. Bancroft, J. Ross Clark, W. H. Comstock, and others.

CALUMET, HAMMOND & SOUTHEASTERN.—This railroad company has been incorporated to construct a road from Chicago, east of Lake Calumet, to the Illinois-Indiana state line, with a branch to Lake Michigan. The incorporators are: Talbot M. Pierce, Chicago; N. R. Hazard, Solvay, N. Y.; H. S. Nandy and Stewart Chaplis, Syracuse, N. Y.; Edward J. Pierce, Geddes, N. Y.

CHATTAHOOCHEE VALLEY.—This road is to be extended from West Point, Ga., as far as Evansville, to connect with the Atlanta & Birmingham, or, at the other end, from Jester, Ala., to Hurtsburg, via Columbus, to cross the Seaboard Air Line and the Central of Georgia. At Dothan it will touch the Atlantic Coast Line and will cross the Louisville & Nashville near Chipley, Fla. The terminus will be at St. Andrew's Bay. L. Lanier, West Point, Ga., is Pres. and Mgr.

ERIE.—The Erie R. R. Co. has recently purchased 54 acres of land on the Hackensack Meadows in New Jersey, which it will utilize in widening its roadbed and increasing its express facilities. The course of the proposed tracks takes a northeast direction after leaving Frank Creek, crosses the Belleville Turnpike and strikes the Greenwood Lake division of the Erie at the point where the tracks of that branch turn to connect with the Newark & Paterson branch, near Snake Hill. This right of way is in a direct line with the new bridge now being constructed over the Hackensack River by the Pennsylvania R. R. Co., which will be part of the Hudson River tunnel entrance, and it is thought the Erie may be planning to enter New York by way of these tubes. F. L. Stuart, New York, is Ch. Engr.

GUELPH & GODERICH.—Bids are asked until 4 p. m., July 3, by P. A. Peterson, Ch. Engr. of this road, for the construction of its Listowell branch, from Lindwood to Listowell, Ont., 17 miles.

GASSOWAY, ELK RIVER & HUTTONSVILLE.—This company, which has just been chartered in West Virginia, will start work immediately on the construction of a line from Gassoway to Webster Spring, with an extension to Huttonsville. The directors of the company are T. M. Jackson, E. B. Carlin, J. M. Hoover, Elihu Hutton, and L. H. Kelley, of Fulton, W. Va.

HOUSTON, SABINE & RED RIVER.—Work has been started on this line, which it is planned to build from Houston, Tex., to Alexandria, La., via Jasper and Burkeville, Tex., and Leesville, La. C. RICE has the contract. H. W. Cortes, Houston, is Pres.

ILLINOIS CENTRAL.—It is stated that the Illinois Central proposes to build from Jackson, Miss., on the main line up through Pearl River Valley to Columbus, Miss., and from there straight across to Birmingham, and that construction will begin at once. A. S. Baldwin, Chicago, is Ch. Engr.

LOUISVILLE & NASHVILLE.—WALTON, WILSON & RHODES, of Knoxville, Tenn., have been awarded the contract to build 56 miles of road for this company. The new line will be a branch known as the Madisonville, Hartford & Eastern R. R., and will form a connecting link between the St. Louis and Louisville lines of the Louisville & Nashville. W. H. Courtenay, Louisville, is Ch. Engr.

LOUISIANA & PACIFIC.—We are officially advised by C. M. Boswell, Gen. Supt., that contracts are being let through his office, at De Ridder, La., for the construction of a line from De Ridder to Banks, via Bon Ami, Lilly Junction and Ramsey. The total length is 37½ miles, of which 18½ miles is reconstruction from narrow to standard gage. Three miles of the remainder is already graded. All right-of-way is secured, and capital is subscribed. Westley Vandercock, De Ridder, La., is Ch. Engr.

LONG ISLAND.—Ralph Peters, Pres. of this road, writes us that the proposed extension from Wading River to Riverhead will not be built for two or three years.

MEMPHIS, PARIS & GULF.—Articles of incorporation have been granted this company, which is organized with a capital of $5,000,000, and intends building a railroad across the State of Arkansas. The incorporators are W. W. Brown, of Camden, and C. C. Henderson and R. E. Major, of Arkadelphia.

MOREHEAD & WEST LIBERTY.—This property has been purchased by the Morehead & North Fort R. R. Co., at Morehead, Ky. The new owners will begin at once to finish the line to Paragon, Ky., but for the present will not build the road to West Liberty, preferring to stop 12 miles this side. The road has been finished to Clark Mountain, which will have to be tunneled, and has nearly all been graded. It is believed the road will be extended to Cannel City to connect with the Ohio & Kentucky line.

MERIDIAN & TOMBIGBEE.—We are officially informed by Frank Hess, Secy. and Treas., that contracts for the construction of this road will be let during July. It is to run from Meridian, Miss., to Waheola, Ala., 45 miles.

NASHVILLE & HUNTSVILLE.—The AMERICAN RAILWAY CONSTRUCTION CO., of New York, has the contract for building this road from Nashville, Tenn., to Pensacola, Fla. T. M. Steger, of Nashville, is Pres.

NEW YORK, NEW HAVEN & HARTFORD.—An application has been made to the Rapid Transit Commission of New York, by the New York, New Haven & Hartford R. R. Co., for a franchise to construct a connecting branch between its main line at Woodlawn and the Harlem River & Port Chester Railroad at a point near West Farms. The application is for the construction of a four-track connection. The Port Chester Co., which is owned by the New Haven & Hartford Co., runs from 129th St. through New Rochelle to Port Chester. If the franchise should be granted, the New Haven Railroad could run its trains over the tracks of the Suburban R. R., as the Harlem River & Port Chester is commonly known, to the Port Morris terminal of the Connecting R. R., and thence to the Pennsylvania station now being constructed on the west side of the city, near 34th St. The Connecting R. R. is a corporation jointly owned by the Pennsylvania and New Haven, and is to be used in common by both systems. The application was referred to the committee on plans and contracts.

NAPIERVILLE JUNCTION.—We are officially informed by John R. Meyers, Secy. and Treas., of Rouses Point, N. Y., that the branch of this line for which the PACIFIC CONSTRUCTION CO. holds the contract, will run from Rouses Point to St. Constant, Que., 27 miles.

OREGON R. R. & NAVIGATION CO.—It is reported that this company will reconstruct 17 miles of line, between Troutdale and Bonnerville, Ore., at a cost of $600,000. G. W. Boschke, Portland, Ore., is Ch. Engr.

SHREVEPORT, HOUSTON & GULF.—This company has been chartered in Texas to build a railroad from Prestridge, a station on the St. Louis Southwestern, in Angelina County, to Houston, 100 miles. The route is through Angelina, Polk, Tyler, Liberty, Montgomery and Harris Counties. The principal office is at Manning. The directors are G. A. Kelley and R. D. Collins, of Lufkin, Texas; J. J. Carroll, Jack Thomas, E. A. Carter, of Camden, Texas; W. T. Carter and C. L. Carter, of Houston.

TEXAS SOUTHEASTERN.—W. J. Raep, Gen. Mgr. of this road, recently incorporated in Texas, informs us that contracts for the construction of the line have been awarded to J. S. MOORE and C. M. McCONMICO, of Lufkin, Tex. J. E. Mitchell, of Lufkin, is Ch. Engr.

WESTERN MARYLAND.—We are informed by J. W. Galbreath, Principal Asst. Engr., Baltimore, Md., that FISHER, GILMORE & REILEY, of Baltimore, have the contract for reconstructing and double-tracking 6¼ miles of this road, from Owings Mills to Emory Grove, Md.

ELECTRIC RAILWAYS.

The names of parties awarded contracts are printed in capital letters.

BUFFALO, N. Y.—The Buffalo & Lackawanna Traction Co. has been incorporated with a capital of $1,000,000, to build an electric railway five miles long in the city of Buffalo. It will be operated by trolley and will run from Hamburg Turnpike at the city line to Clinton and Washington Sts. It is said that the new company was formed to afford the Buffalo-Erie interurban line, now being built, an entrance into Buffalo. The incorporators are Chas. V. Nellany, J. C. Calisch, Oscar F. George and John F. Burke, of Buffalo, and the following residents of New York: William F. Shehan, Joseph B. Mayer, Charles H. Werner, Marshall J. Dodge, Ashley P. Cole, P. S. Babcock, L. B. Grant, Arthur McCanstand, James A. Byrne, George H. Sellers, John J. Brown, John F. Cloonan, Peter C. Shutrum, William J. Bagnell and Edward J. Hatch.

CORNING, N. Y.—It is reported that work will be started in the near future on the line of the Elmira, Corning & Waverly Ry. Co., which will connect the three towns named. J. A. Powers, of Troy, is one of the directors.

NEW YORK, N. Y.—The Board of Estimate has approved the amended plans passed by the Rapid Transit Commission some time ago for a four-track extension of the Brooklyn Rapid Transit system to Bensonhurst, Bath Beach and Coney Island. The proposed extension will be part subway and part surface, with a loop terminal at Coney Island. No money for the proposed extension has been appropriated, and it is not known when the work of construction will begin.

After holding the matter up for several weeks, pending an opinion by the Corporation Counsel, the Department of Water Supply, Gas and Electricity, has granted to the Brooklyn Rapid Transit Co. a permit for the installation of high-power wires on its new elevated and surface extension to Canarsie. The road is to be a high-speed line, on which motor trains will be operated. It has been connected with the Fulton St. line at Pitkin and Vesta Aves., having been elevated from that point along Vesta Ave. to New Lots Road, whence it runs on the surface to the shore of Jamaica Bay. W. S. Menden, 85 Clinton St., is Ch. Engr.

CORRY, PA.—CHAS. VAN BIBBER, of Boston, Mass., is stated to have secured the contract for building a line from Erie to Cambridge Springs, Union City and Corry, and connecting with Conneaut via the Conneaut & Erie. The road will be 40 miles long and cost $1,000,000.

MANAYUNK, PA.—The newly chartered Mount Vernon, Shawmont & Roxborough Street Railway Co. proposes to construct an electric railway to connect North Manayunk and Roxborough with the city by way of the Philadelphia Rapid Transit Co.'s Ridge Ave. line, the upper terminus of which is at Main St. and Green Lane, Manayunk. The route of the new line is from Main St. at Leverington Ave., along Leverington Ave. to Umbria St., out Umbria St. to Shawmont Ave., and along Shawmont Ave. eastward to Ridge Ave., with a return track over the same route.

BALTIMORE, MD.—It is reported that surveys have been completed by the forces of the United Rys. & Electric Co. for a line from Towson to Timonium, and it is the intention of the company to build the line through to Cockeysville. The surveys were completed last week, and parts of the line have already been graded. The route is along York Road, which is owned by the United Rys. so that it is unnecessary for the company to purchase any right-of-way.

NORFOLK, VA.—Baltimore capitalists have incorporated the Norfolk & Jamestown Exposition Railway Co. with a capital stock of $300,000 for the purpose of building and operating electric lines from points on the Norfolk & Atlantic Terminal to the Jamestown Exposition grounds, and to points in the neighborhood of Sewall's Point and Norfolk. The officers of the company are: Alexander Brown, Pres.; B. Howell Griswold, Jr., V.-Pres.; Austin McLanahan, Secy. and Treas. These officers, with John I. Rowe, Irving E. Campbell, William L. Royall and John J. Blake, of Richmond, Va., are the incorporators.

PENSACOLA, FLA.—It is reported that the steam division of the Pensacola Street Ry. Co. system will be electrified at once. The company is also planning a three-mile extension. J. Sweeny is Ch. Engr.

BIRMINGHAM, ALA.—The Tidewater Development Co., which proposes the construction of an electric railway from Gadsden to Tuscaloosa, via Birmingham, a distance of over 100 miles, has filed application for a charter. J. W. Dewberry is Pres.; Lewis Minor is V.-Pres.; J. W. Donnelly is Secy., and E. F. Ensley, Treas.

SHREVEPORT, LA.—L. M. Levinson, Supt. of the Shreveport Traction Co., writes us that the company will begin at once the construction of a branch two miles long to the State Fair Grounds.

MEMPHIS, TENN.—We are officially informed that the contracts for constructing the line of the Lake View Traction Co will be let in the near future. This line will be 77 miles long, running from Memphis to Clarksdale, Miss. W. E. Willett, 552 Randolph Bldg., is Gen. Mgr.

MAYFIELD, KY.—P. Burnett, Pres. of the Mayfield & Columbus Ry. Co., writes us that contracts for the construction of this line, 30 miles, from Mayfield to Columbus, will be awarded immediately. Survey has been made and right-of-way is being secured rapidly. The work will be only average level construction and will be pushed rapidly. W. B. Stanfield, of Mayfield, is Ch. Engr.

FINDLAY, OHIO.—It is reported that the City Council has granted a franchise to the Findlay-Marion Electric Ry. Co. to build a street railway.

NEWARK, OHIO.—It is reported that the Ohio Central Ry. Co. will begin at once the construction of an interurban line from Newark to Lancaster. Options are secured and surveys are being made. Wilbur A. Ginn, of Columbus, Ohio, is Ch. Engr.

GALLIPOLIS, OHIO.—It is reported that the Gallipolis, Huntington, Ironton, Portsmouth & Columbus Ry. Co. recently incorporated by Col. A. E. Boone, of Zanesville, proposes to build a large system of traction lines radiating from Gallipolis. According to Col. Boone, there will be four divisions of the system, as follows: Ohio River Division—Gallipolis to Ironton and Portsmouth; Cincinnati Division—Gallipolis to Waverly and Hillsboro; Columbus Division—Gallipolis to McArthur, and Lancaster to Columbus, and the Wilson Division—Gallipolis to Jackson and Wellston.

DEFIANCE, OHIO.—We are officially informed that contracts will be let during August for building the Northwestern Ohio Electric Ry. Co.'s line from Defiance to the Michigan State line, via Bryan and Mount Pelier, 44 miles. G. A. Bigerish is Pres. and M. Stineburger, Ch. Engr.

INDIANAPOLIS, IND.—Contracts for grading, ballasting and tracklaying on Indianapolis, New Castle & Toledo Electric Ry. have been awarded to J. T. ADAMS, of Columbus, and S. E. SEAGRAVES, of Toledo.

MUNCIE, IND.—The Muncie Traction Co. has been incorporated in Indianapolis with a capital of $[illegible], to build a line between Selma, Parker, Winchester and Muncie. The line will parallel the C. C. C. & St. [illegible]

CHICAGO, ILL.—The [illegible] have given the figures at which their present properties, [illegible] Chicago City Railway Co., $[illegible] Traction Co., $27,401,218.

MANITOWOC, WIS.—The [illegible] Railway Co., organized a year ago, an interurban line between Kaukauna, has increased [illegible] from $25,000 to $200,000 and will build from here to Sheboygan. [illegible] part of the line will be completed this summer and the road will be [illegible] this year. C. W. Behuke, of Bay [illegible]

MILWAUKEE, WIS.—John [illegible] and Gen. Mgr. of The Milwaukee Electric Ry. & Light Co., has announced that three new lines radiating from Watertown are being considered by his company. [illegible] will be built within the near future, [illegible] the extension to Watertown will be completed within two years and [illegible] running out of that city will be [illegible] it is contemplated, for this line to be a part of the main artery [illegible] Milwaukee.

HOUSTON, TEX.—G. E. [illegible] ing Stone & Webster, of Boston, [illegible] the announcement that the [illegible] syndicate will build an interurban line between Houston and Galveston. [illegible] engineering and preliminary work will be begun at once, and the location [illegible] will be determined upon and rights-of-way secured. R. H. Baker, of Austin, representing E. M. House, and others who are interested, will have charge of the right-of-way matters. The route has not been determined upon, but it is proposed to connect the two cities with a more direct line and to operate only a high-speed passenger service.

BELLINGHAM, WASH.—It is reported that the Whatcom County Railway & Light Co. will construct an interurban line to Lynden and Ferndale, also to Blaine, by way of Marietta. H. Titcomb, of Bellingham, is Engr. The line is owned by Stone & Webster, of Boston.

PORTLAND, ORE.—It is reported that plans are rapidly maturing for the construction of a subway and street car system to cover East Portland, with cross-town lines and three main lines to the east and north city limits, tapping the packing house district on the peninsula. The total cost will be about $2,000,000. Work on the subway will probably begin this summer. The undertaking was begun by Thomas McCusker, of the Geiser-Hendryx Investment Co., and L. Y. Keady. The subway and east side trolley system has been taken up as a distinctly independent project and has secured the support of ample capital. The grade will be 3½%. It will consist of a double tube 26 ft. in height. Each tube will carry standard and narrow gage track. The tubes will be of steel reinforced with concrete. The opening at each end will be above any possibilities of interference by high water. The franchise provides that the subway shall be commenced within a year and completed within five years.

WINNIPEG, MAN.—It is reported that the City Council has voted to issue bonds for $3,250,000 for the purpose of establishing a street railway system to be owned by the city.

NEW WESTMINSTER, B. C.—It is reported that the British Columbia Electric Ry. Co. will build a line from New Westminster to Chilliwack, 90 miles, at a cost of $2,000,000. F. R. Glover, of New Westminster, is Mgr.

LIGHT AND POWER PLANTS.

The names of parties awarded contracts are printed in capital letters.

ALBANY, N. Y.—The contract for installing an electric lighting plant in the Capitol, Albany, has been awarded to W. M. SHEEHAN & CO., 136 Liberty St., New York, at $43,100.

TROY, N. Y.—The Board of Contract and Supply has awarded a contract to the TROY GAS CO. to furnish 468 arc lights of 2,000 c. p., at 26 cts. per night per lamp. The contract is to remain in force from the first day of June, 1906, until the last day of May, 1911.

HUDSON, N. Y.—Bids are asked until noon, July 6, by Charles H. Strong, 54 William St., New York, for constructing, heating, plumbing and installing electric lights in two cottages at the New York State Training School for Girls, Hudson. G. L. Heins is State Arch., Capitol, Albany.

ALBANY, N. Y.—Contract for lighting plant for the State Capitol at Albany, N. Y., has been awarded by the Trustees of Public Buildings to W. M. SHEEHAN & CO., of New York, at $43,100. J. G. White & Co., 43 Exchange Pl., New York, are Des. Engrs.

PHILADELPHIA, PA.—Bids are asked until 11 a. m., July 14, by the Bureau of Yards and Docks, Navy Dept., Washington, D. C., for installing underground electric cables at the League Island Navy Yard. Montreal T. Endicott is Ch. of Bureau. Specifications are on file at office of Engineering News, New York.

HAVERFORD, PA.—WILLIAM P. DOUGHERTY, 1604 Sansom St., Philadelphia, has secured contract for an addition to the heating and lighting plant of Haverford College.

CARLISLE, PA.—The Carlisle Gas & Water Co. is prepared to receive bids for remodeling its electric light plant. A complete line of equipment is required.

ROANOKE, VA.—Reports state that a syndicate composed of S. D. Ferguson and others, of Roanoke, and J. D. Funkhouser, of Staunton, Va., has purchased a controlling interest in the Roanoke Gas & Water Co., and will make extensive improvements to plant. The company has a capital stock of $[illegible]

RUTHE... DEL.—See under Water Supply and Irrigation.

NEW... N. C.—J. H. T. Martin, A. D. Ward ... others have incorporated the Newbern Light & Fuel Co. with $100,000 authorized ca... stock, to operate gas plant for light and fuel.

CHA...STON, S. C.—Bids are asked until July 2... Mordecai T. Endicott, Ch. Bureau Yards ... Docks, Navy Dept., Washington, D. C., ... machinery, generating sets and accessories ... for central power station at the Navy ... Charleston. Specifications are on file ... the office of Engineering News, New ...

ATL...TA, GA.—Anton L. Delkin, Frederick ... Ladd and associates have organized the S... ern Gas Co.

CAR...RSVILLE, GA.—The City has voted to issue $25,000 of bonds for the construction of an electric light plant.

WAY...ESBORO, GA.—See under Water-Works and Irrigation.

BEAT...YVILLE, KY.—It is reported that the Central Kentucky Traction Co., of Winchester, Ky., will erect a $900,000 power house at Beattyville, Ford, Valley View or Frankfort, Ky.

GEORGETOWN, OHIO.—We are officially advised that bids will be asked for in about 30 days for constructing a power house with equipment, to cost about $20,000. George Hornung, Johnston Bldg., Cincinnati, is Des. Engr.

CINCINNATI, OHIO.—A permit for the erection of the Western Pumping Station of the Cincinnati Water Works, Queen City Ave., east of Shadwell St., has been issued. The building will be of brick and stone and one story high. It will cost $52,000.

Samuel Hannaford's Sons have awarded the contract for the erection of the pressure pump house of the West End works of the Cincinnati Gas & Electric Light Co., to the L. T. HAZEN CO.

INDIANAPOLIS, IND.—The ELECTRICAL INSTALLATION CO., Monadnock Bldg., Chicago, Ill., has been awarded contract for the power house and substation buildings and equipment, all overhead electrical construction and rolling stock for the Indianapolis-Crawfordsville & Western Traction Co.'s line, 45 miles. Allis-Chalmers Co.'s steam and electrical machinery and car equipments will be used. It is expected to have the line in operation between Indianapolis and Crawfordsville by March, 1907.

HART, MICH.—The Pere Marquette Light and Power Co. is now receiving quotations on material for 96 miles of transmission line.

PAW PAW, MICH.—The Town Council is considering the proposed construction of a dam on Paw Paw River to obtain increased power for the municipal electric lighting plant.

NASHWAUK, MINN.—Bids are asked until 7.30 p. m., July 10, by the Village of Nashwauk, for supplying a 50-KW. dynamo, wiring, pole line and engine. Claussen, Burch & Pillsbury, German American Bank Bldg., St. Paul, are Consult. Engrs.

WILLISTON, N. DAK.—Bids are asked until 10 a. m., July 9, by the U. S. Reclamation Service for installation of steam and electric pumping plants, and electric generating and transmission apparatus, including three pumping engines, two 300-KW. steam turbine-generating units, a 1,000-HP. boiler plant and accessories, the necessary buildings and a 3-mile transmission line. H. A. Storrs is Elec. Engr., Williston. Specifications and bidding sheet are on file at office of Engineering News, New York.

MISSOULA, MONT.—The Missoula Light & Water Co. has purchased the heating plant in the rear of the First National Bank Bldg. from the Missoula Mercantile Co. It is the purpose of the Missoula Light & Water Co. to install a lighting station, which will be an auxiliary to the station at Bonner.

ST. LOUIS, MO.—L. T. Westrich, it is reported, has secured franchise to establish electric light plant at Grafton, and organized company with $10,000 capital stock to operate same.

LITTLE ROCK, ARK.—The City has granted franchise to John G. Vogel to establish electric light plant.

WEATHERFORD, TEX.—Weatherford Gas Light, Heat & Power Co. will operate gas plant, for which franchise has been let. A building 125 × 200 ft. will be erected. About $50,000 will be expended in buildings and equipment, to be a naphtha plant, Federal process. Geo. E. Moreland, Mineral Wells, Tex., is Engr.-in-Charge.

SEATTLE, WASH.—THE ABBOTT HEATING CO. has been awarded the contract for the heating system of the new Lincoln high school. The company took the contract at a bid of $15,855.

NEWBERG, ORE.—The Newberg Electric Light Co. and the Spaulding Logging Co. have been consolidated under the name of Yamhill Electric Co. The company is incorporated with a capital of $25,000, and will build a new plant of 300 HP. on the Willamette River.

PROVO, UTAH.—The Telluride Power Co., of Provo, will erect a power plant on Grove's Creek, a branch of the Provo River, within the next few months. The water is to be diverted from the Grove's Creek and piped a distance of 15,478 ft. to the site of the power plant. One Pelton double wheel is to be installed operating under a head of 1,947 ft. The capacity of the plant will be 3,500 HP. The electricity will be used for supplying power for Provo, Eureka and other towns south of Provo.

EMMETT, IDAHO.—E. H. McCauley has purchased the Emmett Power & Water Co.'s plant at Emmett and will make changes and improvements in the plant. The methods of operations will be changed from steam to water power.

KENORA, ONT.—The contract for supplying generators, switchboards and exciters for the new power station here has been secured by ALLIS-CHALMERS-BULLOCK CO., of Montreal, Que., at $41,600. WILLIAM HAMILTON MFG. CO., of Peterboro, has contract for turbines and appliances, manhole rings, valves, gate lifts, etc., at $32,353.

BOONEVILLE, QUE.—A. Robbecks has been granted a 30-yr. electric light franchise by the town of Booneville. The work of installing the plant will begin at once.

BRIDGES.

The names of parties awarded contracts are printed in capital letters.

WESTFIELD, MASS.—Bids are asked until noon, July 10, by the Board of Selectmen for furnishing materials and placing new stringers, flooring, etc., on the Great River bridge. Oren E. Parks is Town Engr. (Advertised Engineering News.)

WOONSOCKET, R. I.—We are officially advised that the following are the bids received June 22 for the Main St. bridge: Fred & A. S. Gore Corporation, Old South Bldg., Boston, Mass., $8,473; Charles F. Parker, Woonsocket, R. I., $5,752; Cumberland Construction Co., $4,752; F. H. Mills is City Engr.

NEW YORK, N. Y.—J. W. Stevenson, Comr. of Bridges, on June 16 awarded the contract for the construction of the steel towers and suspended structure of the Manhattan Bridge to the PARKER-RYAN CONSTRUCTION CO. The contract price was $6,493,233 for furnishing and placing the 40,000 tons of steel required. Work will be begun within the next six weeks, and under the contract the bridge must be ready for traffic on Dec. 15, 1909.

Bids are asked until 2 p. m., July 9, by James W. Stevenson, Comr. of Bridges, for completing the piers and abutments and building the arches and approaches of the Pelham bridge, over Eastchester Bay, in Pelham Bay Park, Borough of the Bronx.

NEW CASTLE, PA.—Bids are asked until July 6, by the Board of County Commissioners, J. A. McMillen, Chn., for constructing the superstructures of the following three bridges: Beaver Dam Run in Little Beaver Township, Hickory Creek in North Beaver Township and McClures Run in the Borough of New Wilmington; in addition thereto the bids for the Hickory Creek bridge shall include the substructure.

WASHINGTON, D. C.—R. S. NEAL, of Scotland Neck, has secured the contract to build a large steel bridge across Pamlico River.

MACON, GA.—It is stated that an iron and steel viaduct will be constructed over Bay St. Bridges Smith is Mayor.

TAMPA, FLA.—The Tampa Northern Ry. Co. has let the contract for a $40,000 steel bridge to span the Hillsboro River, to a firm in Atlanta, Ga. Work on the new bridge will commence at once, and it will be finished by Oct. 1.

JACKSON, MISS.—A new steel bridge will be built across Pearl River, five miles north of the city. John Lorenz is Chn. of the Bridge Com. of the Jackson Bd. of Trade.

HAMMOND, LA.—The Hammond Lumber Co. is reported as arranging for the erection of a steel bridge across the Tangipahoa River.

CLEVELAND, OHIO.—Bids are asked until 11 a. m., July 7, by the County Commissioners, for construction of masonry abutment and railing. Julius C. Dorn is Clk.; William H. Evers is County Engr.

XENIA, OHIO.—Bids are asked until July 6, by William Dodds, County Audr., for constructing bridges over Little Miami River, in Cedarville Township, and in Spring Valley Township, to be 213, 104 and 132 ft. long, respectively.

RICHMOND, IND.—The Wayne County Commissioners have awarded a contract to the CENTRAL STATES BRIDGE CO., of Indianapolis, for construction of a bridge south of Greenfork, at $3,600.

ATTICA, IND.—EDWARD CURTIS, of this city, has been awarded a contract for erection of seven bridges for the Indianapolis, Crawfordsville & Western Traction Co.

TIPTON, IND.—Bids are asked until July 2, by the Commissioners of Tipton County, for erecting the Bailey bridge in Wildcat Township; also for constructing an arch, known as the Landman Arch, in Cicero Township. T. W. Longfellow is County Audr.

KOKOMO, IND.—Bids are asked until 2 p. m., July 3, by the Commissioners of Howard County, for constructing the Hancock, Buchanan, Costlow, Gallion and Fleish bridges, and the Miller arch. William L. Bensen is County Audr.

MISHAWAKA, IND.—The MARSH BRIDGE CO., of Des Moines, Iowa, has been awarded the contract by the County Commissioners for building the span Melan type bridges across the St. Joseph River at La Salle, South Bend and at Bridge St., Mishawaka, the contract prices being $84,750 and $81,100, respectively.

INDEPENDENCE, KANS.—Bids are asked until noon, June 30, by the Commissioners of Montgomery County, for constructing bridges as follows: One 130-ft. span, with 100-ft. approaches at each end, over the Verdigris River; one 124-ft. span, with 52-ft. approaches at each end, over the Elk River, at a point known as Wilkerson's Ford. Samuel M'Murtry is County Clk.

IOLA, KANS.—The County Commissioners have voted to build eight iron bridges in the county. The largest is an 80-ft. bridge in Iola Township, over the Rock Creek, at McCarley's Ford.

HOLTON, KANS.—Bids are asked until July 3, by the Board of County Commissioners, George L. White, Chn., for constructing three steel bridges, each about 40-ft. span, with a 14-ft. roadway.

FARGO, N. DAK.—JOHN R. JARDINE, of Fargo, has secured contract to construct eight bridges, varying from 400 to 40 ft. in length, at an average price of $10 a lin. ft.

HELENA, MONT.—We are officially informed that the Commissioners of the County of Lewis and Clark have awarded to the MINNEAPOLIS STEEL & MACHINERY CO. contract to construct a steel bridge 540 ft. long. The bridge will have three spans, each 180 ft. long. It will cross the Missouri River at Trout Creek, 14 miles from Helena. The bridge is being built to be used jointly by the County and the Helena Power Transmission Co. Arthur L. Irelan is Acting County Surv.

ST. MAURICE, N. B.—C. H. La Billois has awarded the contract for Birch Island Bridge, across the Buctouche River, at St. Maurice, of Kent County, to WHITMAN BREWER, of St. Maurice. The contract price is about $7,500. The bridge will be 700 ft. long, including long wooden approaches to solid masonry piers, on which will swing a steel draw of S ft.

NIAGARA, ONT. — The Trans-Niagara Bridge Co. has been incorporated, with a capital of $1,000,000, to build a bridge across the Niagara River north of the upper steel arch bridge at Niagara Falls. Among the corporators are Frederic Nicholls, Sir Henry Hellatt, H. G. Nicholls, E. R. Wood and Allan H. Boyce, of Toronto. The bridge is to be for railroad and general traffic.

AULTSVILLE, ONT.—Bids are asked until June 30, by H. E. Hodgins, Osnabruck Center, for constructing a steel and concrete bridge.

SOURIS, MAN.—Bids are asked until June 30, by J. W. Breakey, Town Clk., for constructing concrete abutments; also a 75-ft. steel span bridge across Plum Creek, at Souris.

WINNIPEG, MAN.—The Kildonan Council has decided to have estimates prepared for piers and approaches for bridge at the old Kildonan ferry.

VANCOUVER, B. C.—The City of Vancouver will ask for bids for building a steel bridge over False Creek Harbor. The structure at Greenville St. will be 2,250 ft. long, with an additional 1,000 ft. at Westminster Ave. The cost of the improvements will be about $500,000. Arthur McEvoy is City Clk.

BUILDINGS.

The names of parties awarded contracts are printed in capital letters.

BEVERLY, MASS.—J. W. DUFF, of Auburndale, Mass., has been awarded the contract to build a new high school for the city of Beverly, at about $80,000. Cooper & Bailey, 60 Congress St., Boston, are Archs.

WORCESTER, MASS.—It is reported that G. W. Houck, 8 Townsend St., will erect an apartment house at Elm and Linden Sts., to cost $58,000.

BINGHAMTON, N. Y.—Bids are asked until 3 p. m., July 3, by the State Commission in Lunacy, for a building at the State Hospital. T. E. McGorr is Secy. (Advertised Engineering News.)

ROSLYN (L. I.) N. Y.—Contract has been let for the construction of a casino, 40 × 40 × 240 ft., on the estate of Clarence H. Mackay, at Harbor Hill. The estimated cost is $200,000.

SCHENECTADY, N. Y.—GUY B. DICKISON, of Syracuse, has been awarded the contract to erect a Union Station for the New York Central and Delaware & Hudson River R. R. companies, at about $500,000.

HUDSON, N. Y.—Bids are asked until noon, July 6, by the Board of Managers of the New York State Training School for Girls, for constructing buildings and installing light fixtures, wiring and plumbing. Charles H. Strong, 54 William St., New York, is Pres.

OSWEGO, N. Y.—The following bids were opened June 19, by the State Armory Commission, for the construction of an armory at Oswego: Peter Keeler Building Co., Albany, $68,450, in 300 days; M. Stipp Construction Co., Scranton, $72,370 in 300 days; W. J. Burns Co., Syracuse, $73,737, in 395 days; J. E. Leamy & Co., Syracuse, $75,000, in 350 days; Peter Roby, Oswego, $79,500, in 275 days; White Construction Co., Rochester (informal) $64,950, in 350 days; Scott & Robb, Norwich, $77,612, in 500 days; T. Whalen & Son, Ogdensburg, $70,736, in 300 days; Hudson Valley Construction Co., Troy, $77,400 in 390 days. The lowest bid, that of the White Construction Co., Rochester, N. Y., is considered informal for the reason that its deposit did not cover the amount named in the specifications. George L. Heims, Capitol, Albany, is State Arch.

NEW YORK, N. Y.—Rouse & Sloan, Archs., 11 West 43d St., have plans ready for an apartment house, 135 × 208 ft., to be erected at 110th St. and Riverside Drive at a cost of about $1,000,000.

David Belasco has awarded the contract for the construction of his new theater in West 44th St. to M. R. BIMBERG. George Keister, 11 West 29th St., is Arch.

The Importers and Traders' National Bank, 247 Broadway, has commissioned J. H. Freedlander, Arch., 244 5th Av., to design plans and specifications for the new bank and office building, 6-story, 25 × 100 ft., which it will erect on the site of the old structure, at the southwest corner of Broadway and Murray St.

Bernstein & Bernstein, Archs., 24 East 23d St., have completed the plans for the synagogue for the Congregation Talmud Thora, at Nos. 132 and 134 East 111th St. They estimate the cost at $150,000. Work on the building will be begun this fall.

Chas. T. Wills, 156 5th Ave., general contractor, is taking bids on all sub-contracts for the 12-story store and office building, which W. R. H. Martin is to erect on Broadway at 34th St., to cost $1,000,000. Townsend, Steinel & Haskell, 20 East 19th St., are Archs.

The THOMPSON-STARRETT CO., 49-51 Wall St., has been awarded the general contract to build the new 12-story hotel to be erected in connection with the Hoffman House, at the corner of Broadway and 24th St. R. L. Daus, 130 Fulton St., is Arch.

SOMERVILLE, N. J.—FISSEL & WAGNER, 1133 Broadway, New York, have been awarded the contract to erect the Somerset County Court-house, at $227,589.

WEEHAWKEN, N. J.—Henry Feinstrom, Ch. Engr. of the West Shore R. R., has awarded contracts to the BUTLER BROTHERS CONSTRUCTION CO. for all the work on the erection of a new ferry house and two double-track apron transfer bridges, which will be built at Pier 12, Weehawken. The total cost of the work will be about $1,670,000.

JOHNSTOWN, PA.—K. G. Eckles, Arch., Lawrence Trust Bldg., New Castle, Pa., writes us that bids will be opened about July 10 for three fireproof school buildings to be erected at a cost of $125,000 for the city of Johnstown.

MILLERSVILLE, PA.—The School Board is seeking estimates on the construction of a 3-story school to be erected at a probable cost of $75,000.

LANCASTER, PA.—Chas. Urban, Arch., Woolworth Bldg., has invited bids for the erection of an 8-story office building to cost about $75,000.

YORK, PA.—B. F. Willis, Arch., Elbert Bldg., will prepare plans for alterations and additions to the jail at this place, to cost $100,000.

SCRANTON, PA.—Contract for the erection of a 2-story theater building, 80 × 150 ft., has been awarded by S. Z. Folt to FRANK RICCA, at about $100,000.

CAMBRA CITY, PA.—PATRICK FLINN, Altoona, Pa., has been awarded the contract for the St. Mary's German Roman Catholic Church to be erected at Cambra City from plans by William P. Ginther, Arch., of Akron, Ohio. Cost, $100,000.

BETHLEHEM, PA.—Bids are being received by A. W. Leh, Arch., for the construction of new dormitories at Lehigh University. Estimated cost, $100,000.

READING, PA.—L. H. FOCHT & SON, 529 Court St., have been awarded the contract for erecting the $200,000 7-story warehouse, 125 × 150 ft., at Spring Garden and Culvert Sts., for the Central Storage Co. Furness, Evans & Co., Provident Bldg., Philadelphia, are Archs.

PITTSBURG, PA.—D. H. Hostetter, Hostetter Bldg., has awarded the contract to C. L. WALTHERS & CO., 715 Wabash Bldg., for the erection of a 14-story reinforced concrete warehouse building, 60 × 160 ft., at Water and Ferry Sts. Cost, $250,000. The first six floors will be made strong enough to sustain 300 lbs. to the sq. ft., and the other floors will carry 250 and 150 lbs. to the sq. ft. The general contractor is in the market for steel rolling doors, heating system, plumbing system and 14 flights of iron stairs.

BRADDOCK, PA.—Nelson, Morris & Co., 234 La Salle St., Chicago, are taking bids for the erection of a $100,000 market and warehouse to be erected at Braddock.

PHILADELPHIA, PA.—W. L. Blithe, Arch., 14 South Broad St., is preparing plans for a bank for the Market St. Title & Trust Co. to cost $100,000.

ANNAPOLIS, MD.—Bids were opened at the office of the Secretary of the Navy, Washington, D. C., for the construction of a gunshed at the Naval Academy, Annapolis, Md. The only bid received was that of the Penn Bridge Co., Beaver Falls, Pa., at $23,980.

WASHINGTON, D. C.—Bids are asked until noon, July 7, by the District Commissioners, for cell work and plumbing in the work house. (Advertised Engineering News.)

Washington Lodge No. 15, B. P. O. E., has accepted plans for its new $100,000 lodge building. B. S. Simmons, 523 9th St., N. W., is Arch.

WASHINGTON, D. C.—Bids are asked until noon, July 14, for bricks for new dormitory building at the Soldiers' Home. (Advertised, Engineering News.)

COLUMBUS, OHIO.—The Ohio State University will erect a girls' dormitory, to cost $90,000, agricultural buildings, to cost $80,000, and an engineering building, to cost $75,000.

CLEVELAND, OHIO.—HENRY WATTERSON, Citizens' Bldg., has the carpenter contract, and WILLIAM T. PAUL & SON, 798 East Madison Ave., the mason contract for the erection of the $55,000 3-story brick bank and apartment building at Broadway and East 55th Sts. Hubbell & Benes, Citizens' Bldg., are Archs.

INDIANAPOLIS, IND.—Rubush & Hunter, Archs., 22 Fitzgerald Bldg., have plans ready for a new home for the Marion Club, to be erected at a cost of $50,000.

BLOOMINGTON, IND.—Wing & Mahurin, Archs., Pixley-Long Bldg., Ft. Wayne, Ind., are preparing plans for a court-house to cost $150,000.

LAKE FOREST, ILL.—NALAN & WOLF MANUFACTURING CO., 35 Fullerton Ave., Chicago, have the mill work, and the UNION FOUNDRY WORKS, 164 Dearborn St., Chicago, have the steel work, for a residence to be built at Lake Forest for Earnest A. Hamill. It will be 2-story and attic, 35 × 120 ft., and cost $60,000. Spencer & Powers, 17 Van Buren St., are Archs.

CHICAGO, ILL.—John Ahlschlager, Arch., is preparing plans for a building to contain stores, offices and halls, to be built at the corner of 91st St. and Commercial Ave. It will be three stories, 75 × 135 ft., and will cost $55,000.

H. W. SCHLUETER, general contractor, 537 Marquette Bldg., is taking figures on rubble stone, crushed stone and gravel, for the Bernard Moos school to be built at North California and Wabansia Aves. It will be 3-story and cost about $175,000.

Julian Barnes, Arch., 1118 Association Bldg., is preparing plans for a bank building to be built at 643 and 645 West 63d St. for the First National Bank, of Englewood. It will be one-story, 52 × 150 ft., and cost $100,000. The architect will not receive bids before the first of August.

The Board of Trustees of the Northwestern University, Evanston, has decided to build a school of engineering, to cost $100,000. D. H. Burnham & Co., Archs., Railway Exchange Bldg., will probably make the plans.

D. H. Perkins, Arch. for the Board of Education, Tribune Bldg., has completed plans for a new school to be built at 113th St. and Morse Ave., and the business manager, 730

Tribune Bldg., will receive bids until June 29 for its construction. It will be three-story, of fireproof construction, contain 26 rooms and cost $175,000.

HAWTHORN, ILL.—F. E. Davis, Arch. for the Manufacturers' Junction Railway Co. and for the Western Electric Co., 159 South Clinton St., let the general contract to WAFUL & DEUCHLER, 172 Washington St., and steel work to the NOELKE-RICHARDS IRON WORKS, Monadnock Block, Chicago, for a freight shed to be built at Hawthorn for the Manufacturers' Junction Railway Co. It will be one-story, 30 × 200 ft., of steel construction, with brick walls, on concrete foundation. The same architect let the masonry to the FALKENAU CONSTRUCTION CO., Stock Exchange Bldg., Chicago; carpentry to WAFUL & DEUCHLER, steel work to the NOELKE-RICHARDS IRON WORKS, foundation to BULLEY & ANDREWS, 115 Dearborn St., and roofing to the STANDARD ROOFING CO., 290 South Halsted St., Chicago, for a power house to be built at Hawthorn, in connection with the wood working shops, which will cost $650,000.

MILWAUKEE, WIS.—Marquette College will erect a building, 130 × 180 ft., on Grand Ave. at 11th St., to cost $120,000. C. D. Crane, 91 Wisconsin Ave., is Arch.

FERGUS FALLS, MINN.—Bids are asked until July 5 by the State Board of Control for erecting a new three-story pressed brick and cut stone fireproof dormitory at Fergus Falls, to cost $50,000. L. H. Leavitt, St. Paul, Minn., is Chm.

ST. PAUL, MINN.—Wm. Hamm contemplates the erection of an 8-story pressed brick and cut stone temple here for labor unions. It is to be fireproof and cost $135,-000.

DULUTH, MINN.—Kees & Colburn, Archs., 603 Kasota Bldg., are preparing plans for a residence to be built here for Joseph Cotton at a cost of $90,000.

OMAHA, NEBR.—Bids are being asked by the Union Pacific R. R. Co. for the construction of modern fireproof car shops to cost at least $700,000. The structures will be 340 × 520 ft. in size, at least two stories high, and of steel, stone and brick. The Union Pacific has also arranged to erect a new office building in Omaha at a cost of $1,000,000. It will occupy the site of the road's present office building at 9th and Farnam Sts. A. L. Mohler, Omaha, is V.-Pres. and Gen. Mgr.

FORT WORTH, TEX.—A college for girls is to be erected here to cost $50,000 by the Sunday League of America. Edward Thompson, D. D., of Fort Worth, is interested.

EL PASO, TEX.—HEWITT & JONES have been awarded the general contract for erecting the Texas St. Theater, and SOR-ENSON & MORGAN have the contract for the foundation. Total cost, $100,000. Trost & Trost are Archs.

SPOKANE, WASH.—It is reported that Chas. White and C. D. Bibbins will erect an automobile garage to cost $50,000.

SEATTLE, WASH.—It is announced that James A. Moore will build an apartment house and store building, 215 × 108 ft., at a cost of $200,000; an auditorium building to cost $50,000, and a theater to cost $150,000.

STOCKTON, CAL.—The Stockton Savings & Loan Society Bank will begin construction within 60 days on its seven-story building which is to be erected at a cost of $250,000.

SUISUN, CAL.—Bids are asked until July 16 by the Board of Supervisors of Solano County for the erection of a jail to cost about $50,000.

SAN FRANCISCO, CAL.—M. A. Gunst will erect an 8-story reinforced concrete building at Mission and Third Sts. to cost $125,000.

The Central Realty Co. will erect a 5-story reinforced concrete building on Sutter St., near Kearney, at a cost of $125,000.

Sylvian Schnaittacher, Arch., has plans prepared for an office and store building to be erected at Market and Fourth Sts. at a cost of $600,000.

Gottlob, Marx & Co. will replace the Columbia Theater, which was destroyed, with a fireproof structure to be built at Van Ness and Myrtle Aves. Building will be 120 × 150 ft. and cost $300,000.

It is reported that $300,000 has been subscribed by Presbyterian churches throughout the United States for rebuilding those churches which were destroyed by the earthquake and fire.

It is reported that the French-American Bank has purchased the Bullock & Jones Building at Sutter and Trinity Sts. and will have it remodeled at a cost of $75,000.

SALT LAKE CITY, UTAH.—The Rio Grande & Western Pacific R. R. Co. will erect a station here to cost $250,000.

KINGSTON, ONT.—A new hotel is to be built on the site of the British American, to cost $125,000.

MONTREAL, ONT.—Carrere & Hastings, Archs., have been engaged by Westinghouse, Church, Kerr & Co. to draw plans for a $2,000,000 station to be erected here for the Grand Trunk Pacific R. R. at Montreal. Westinghouse, Church, Kerr & Co. are Engrs.-in-Charge.

WATER SUPPLY—IRRIGATION.

The names of parties awarded contracts are printed in capital letters.

BRATTLEBORO, VT.—The contract for the municipal water system here has been awarded to the LORNING N. FARNUM CO., 504 Exchange Bldg., Boston, Mass., at $169,-000. Other bidders were: F. T. Ley & Co., Springfield, $188,000; Breglia & Way, Springfield, $167,630.86; F. S. & A. P. Gore, Medford, Mass., $197,430; O'Connell & Son, Holyoke, $162,659.

NEW YORK, N. Y.—We are officially advised that the MARINE ENGINE & MACHINE CO., 126 Liberty St., New York, has secured the contract for installing two 5,000,000-gallon pumping engines for the Canarsie pumping stations, Boro. of Brooklyn. William B. Ellison is Comr. of Water Supply, Gas and Electricity.

HOLLAND PATENT, N. Y.—The citizens have voted for the establishment of a municipal system of water-works at Holland Patent, to cost $16,000. It is estimated that the daily requirement will be 50,000 gallons.

CINCINNATUS, N. Y.—Cincinnatus is to have a gravity system of water-works, the Town Board having voted to expend $14,000 for that purpose.

ALBANY, N. Y.—Bids are asked until 3 p. m., July 2, by the Board of Contract and Supply, for tube boilers, fuel economizers and a mechanical forced draft system for the Quackenbush St. pumping station. Isidore Wachsman is Clk.

OTISVILLE, N. Y.—Bids are asked until July 3, at the office of the Board of Health of the City of New York, for furnishing and delivering galvanized iron pipe, c.-i. pipe, couplings, branches, vitrified pipe, tile drains, Portland cement and wooden tanks, as required, to sanatorium at Otisville, during the year 1906. Thomas Darlington is Pres. Pd. of Health.

FREELAND, PA.—The Freeland Water Co. is making arrangements to lay a water main on North Ridge St., from the intersection of North to Schwabe Sts., and from Schwabe St. to the borough line.

PHILADELPHIA, PA.—On June 12 the following contracts were let by Thomas L. Hicks, Dir. Pub. Wks., for contract No. 70, the distributing system, on the Torresdale filter plant: Pipe, WALTER WOOD, 400 Chestnut St., Philadelphia, 3,229 tons c.-i.; EAST JERSEY PIPE CO., Paterson, N. J., 53,000 ft. lock-bar steel; JAMES McNEIL & BROS. CO., Pittsburg, Pa., 26,400 ft. riveted steel; CARROLL-PORTER BOILER & TANK CO., Pittsburg, 23,000 ft. riveted steel; FAIR-BANKS CO., Seventh and Arch Sts., valves; total, $1,118,537.

Trenching and laying, ROBERT C. STORRIE, New Orleans, La., $393,876; CUNNINGHAM & MURRAY, 1345 Arch St., $203,042; AMERICAN PAVING & CONSTRUCTION CO., 211 South Ninth St., $71,012.

The contract for constructing the Torresdale pumping station has been let to DAVID PEOPLES, Betz Bldg., $117,000; for fence around the plant, EDWARD FAY & SON, 2666 Richmond St., $5,549.

ALTOONA, PA.—Specifications and bidding-sheet for storage reservoir to be built at Altoona by the Board of Water Commissioners are on file at the office of Engineering News, New York. C. B. Campbell is Secy.; S. A. Gailey is Supt. Bids are asked until Aug. 2.

PHILADELPHIA, PA.—The Bureau of Filtration, Philadelphia, Major Cassius E. Gillette, Ch. Engr., will shortly advertise for bids, to be opened about July 10 or 15, for constructing a filter plant at Queen Lane reservoir. At the same time, bids will be received from contractors upon their own plans to furnish the plant. A circular regarding the proposed work is on file at the office of Engineering News, New York.

RUTHLY (Newark post-office), DEL.—WILLIAM R. DOUGHERTY, 1604 Sansom St., Philadelphia, Pa., has been awarded contract by the Delaware Water Co. for a power and pumping plant to be built here.

WARRENTON, VA.—Bids are asked until July 16 by Mr. D. J. Howell, Civil and Hydraulic Engr., 605 12th St., N. W., Washington, D. C., for construction of an earthen dam with concrete core, on the side of Yew Tree Mountain, 2¼ miles west of Warrenton, Va., at a point somewhat below the old reservoir. The dam will be 43 ft. high at its highest point and 375 ft. long and the reservoir will hold about 6,000,000 gallons. The works involve an expenditure of about $20,000. Plans and specifications may be seen after July 6. (To be advertised, Engineering News.)

CHARLOTTESVILLE, VA.—This city, through Maj. C. M. Bolton, is having plans prepared for the construction of a dam and water-works, four miles southwest of the city. The dam will be of concrete, 70 ft. high and have a width at top of 400 ft. It will impound a reservoir of 600,000,000 gallons. Four miles of 18-in. water pipe will connect the reservoir with the city. D. J. Howell, Civil and Hydraulic Engr., 605 12th St., N. W., Washington, D. C., is preparing the plans.

PARKERSBURG, W. VA.—Board of Affairs has engaged G. L. McKibben to prepare plans and specifications and make estimates on repairs necessary to water-works. An appropriation of $5,000 was recently made for repairs to plant.

WAYNESBORO, GA.—City has voted affirmatively the issuance of $60,666 of bonds for water-works, electric lights and sewerage.

MOORHEAD, MISS.—It is reported that this town will establish a water supply system.

SHELBY, MISS.—See under Sewers.

NASHVILLE, TENN.—The Board of Public Works has awarded a contract for furnishing to the water-works department 150 tons of 6-in. c.-i. water pipe to the UNITED STATES CAST IRON PIPE CO., at $4,095.

FRANKLIN, OHIO.—SCHELL & PANSING, of Miamisburg, Ohio, have been awarded the contract for extending the water mains at Franklin.

SWANTON, OHIO.—The proposal to build water-works here has been voted upon, and carried by a large majority.

CLEVELAND, OHIO.—Malarkey & Underhill, of St. Bernard, were the lowest bidders on two contracts for laying mains. For work on Queen City Ave., their price was $13,416, and on Hewitt Ave., $12,700.

SPRING LAKE, MICH.—Bids are asked until noon, July 16, by David M. Cline, Pres., for constructing system of water-works at Spring Lake. Alba L. Holmes, Grand Rapids, Mich., is Engr. (Advertised, Engineering News.)

ROBERTS, ILL.—Bids are asked until July 2 by H. J. Campbell, Chn. Fire, Water and Light Com., for constructing water-works, consisting of a steel water tower, 51 ft. high, surmounted by a wood water tank of approximately 1,000 bbls. capacity, with stand-pipe 6 ins. in diameter, connected to tank, with all connections at bottom ready to connect with water mains; also shut-offs to hold up or start flow of water.

KANKAKEE, ILL.—Bids are asked until 8 p. m., July 2, at the Town Hall in the Village of Bourbonnais, for constructing water system. F. E. Legris is Pres. (Advertised, Engineering News.)

ST. PAUL, MINN.—THE PORTLAND STONE CO. has secured the contract from the Water Board for building 2,000 ft. of the concrete conduit which is to connect Centerville and Pleasant Lakes, at $6,300. R. E. Rundlett is City Engr.

ATCHISON, KANS.—Work will shortly be commenced by the Atchison Water Co. on a $15,000 settling reservoir. The new settling basin will have a capacity of 2,000,000 gallons.

GARDEN CITY, KANS.—A reservoir and ditch capable of watering 15,000 to 20,000 acres will be built on Rule Creek, 18 miles south of Las Animas. The reservoir will be filled from Rule Creek.

OMAHA, NEBR.—Surveyors are now locating a pipe line to be constructed from Horse Creek to the mining camp of Fairview, a distance of 25 miles. W. V. Rice and others have secured the water rights.

WILLISTON, N. DAK.—See under Light and Power Plants.

JACKSON, MO.—Bids are asked until July 9, by Fred. E. Kies, for boring a deep well, with 8 or 10-in. diameter and 400 ft. deep. (Advertised, Engineering News.)

NASHVILLE, ARK.—It is reported that the construction of water-works and an electric light plant is contemplated for Nashville.

TECUMSEH, OKLA.—Bids are asked until July 2, for materials for water-works and electric plants. The arrangements are now being made for the construction. H. W. Asher is Mayor.

WANETTE, OKLA.—Bids are asked until July 5, by the city, for material for constructing proposed water-works. George M. Southgate is Mayor.

TRINIDAD, COLO.—The time of receiving bids for constructing 24 miles of pipe line or conduit, as advertised, has been extended from July 2 to July 9. I. D. Milliken is City Clk.

ANACORTES, WASH.—We are officially advised that engineers have started on preliminary work of the water system to be constructed at Anacortes, by Will. A. Lowman and others. The supply will come from White Lake, 5 miles distant.

SEATTLE, WASH.—We are officially advised that the bids for the extensive water improvements to be made in this city, as noted in issue of June 14, will be asked for in September.

EVERSON, WASH.—M. S. Fite has been granted the right by the County Commissioners to extend the water-works system at Everson by laying pipes along the streets of the town, and in certain county roads.

ASTORIA, ORE.—Bids will shortly be asked for the excavation of the proposed reservoir, which, when completed, will contain 20,000,000 gallons.

PORTLAND, ORE.—We are officially advised that the contract to furnish the Port of Portland with 1,000 ft. of 30-in. shore-pipe has been awarded to J. R. BOWLES. Dan L. Maher is Clk. of Port Bd.

SACRAMENTO, CAL.—Bids are asked until July 2, by M. J. Desmond, City Clk., for laying and connecting about 3,020 ft. steel pipe water main, etc. George Randle is City Surv.

DALHOUSIE, N. B.—In his report on the proposed pumping system for this town, W. Chipman, of Toronto, estimates the cost to be $45,000.

FORT WILLIAM, ONT.—The contract for constructing Section No. 1 of the supply system from Loch Lomond has been secured by W. NEWMAN, of Regina, Sask., at $97,000.

BRANDON, MAN.—We have been officially informed that the contract for 150 tons c.-i. pipe, for which bids were opened June 18, has been let to GARTSHORE THOMPSON CO., of Hamilton, Ont., at $6,150. The company's bid for specials was $62.50 a ton.

SEWERAGE.

The names of parties awarded contracts are printed in capital letters.

FRAMINGHAM, MASS.—Bids are asked until 8 p. m., July 16, by the Sewer Committee, for construction and erection of pumping machinery of 3,000,000 gallons capacity. (Advertised, Engineering News.)

HARTFORD, CONN.—The contract for constructing Section A of the Windsor Ave. sewer has been awarded to FALVEY & KELLY, of Somerville, Mass., at $30,769.

BRIDGEPORT, CONN.—THE B. D. PIERCE, JR., CO. has been awarded the contract by the Public Works Department to complete the trunk sewer in Noble Ave., at $7,821.

NEW YORK, N. Y.—Bids are asked until 11 a. m., July 9, by Joseph Bermel, Pres. Boro. of Queens, for constructing sewers and appurtenances in various streets of the Borough of Queens.

COHOES, N. Y.—HENRY W. ROBERTS & CO. are reported to have secured the contract for constructing sewers in Genesee St., Arnold Ave., and other streets, at $13,956.

NEW YORK, N. Y.—Bids are asked until noon, July 10, by George Cromwell, Pres. Boro. of Richmond, for constructing a system of sewers in District No. 17 A., Third Ward, Borough of Richmond.

OIL CITY, PA.—Bids are asked until 4 p. m., July 9, by the City Controller, for constructing sanitary sewer in Ward Eight, of Oil City, using about 15,845 lin. ft. of from 6 to 18-in. pipe. E. S. Lawrence is City Engr. (Advertised, Engineering News.)

EASTON, PA.—The Sewer C... let contract for constructing se... 14th and Spruce Sts., to DONNE... HAN & CO., at $9,474. The wo... placing 1,347 ft. of brick sewer ... pipe.

BALTIMORE, MD.—Plans ... adopted for the proposed se... plant, and a site upon which it... be constructed has been cho... River. B. T. Fendall is City E... W. Hendrick is Ch. Engr., Sew...

WAYNESBORO, GA.—See ... Works and Irrigation.

AUGUSTA, GA.—We are offi... that J. LEE HANKENSON, of ... secured contract to construct a ... ft. diameter, in West End. ... price is $16,039. Nisbet Wilk... Engr.; William L. Martin is City ...

SHELBY, MISS.—Bids are as... p. m., July 12, by T. J. Mayer... for constructing sewer and water ... tems in Shelby. Ayres & Ferre... son St., Memphis, Tenn., are Con... (Advertised, Engineering News.)

NASHVILLE, TENN.—The City ... authorized the expenditure of $2... stalling sewers in three parts ... W. W. Southgate is City Engr.

BELLEVUE, KY.—Bids are ask... 5 for the construction of a sewe... to cost about $62,000. George ... Mayor; W. L. Glazier, of Newp... Engr.

PAINSVILLE, OHIO.—We are of... formed that on June 12 C. H. STO... Painsville, was awarded contra... structing sewer in Liberty St., at $... P. Cumings is City Engr.

LORAIN, OHIO.—Sewer contra... been awarded to GROVE & HO... FARRIGAN & RANDALL, PENN... RON, and W. J. TOWNSEND, at ... gate cost of $10,000.

TOLEDO, OHIO.—The contract ... struction of Sewer No. 968 in the ... tween Hamilton and Tecumseh Sts. ... let to WATTERS & TANSEY, at $...

CLEVELAND, OHIO.—Bids are ... noon, July 12, by A. R. Callow, ... Pub. Service, for construction of the ... tercepting sewer outlet, consisting ... about 2,600 ft. outlet pipe in Lake ... constructing settling basins, etc., ... Village of Collinwood.

ASHTABULA, OHIO.—Bids are ... noon, July 10, by the Board of Pu... vice for constructing 672 ft. sewer, ... etc. A. J. Richardson is Clk.

WADSWORTH, OHIO.—Bids are ... til noon, July 9, by the Village of W... P. S. Goss, Clk., for installing sani... ers in High, Main, Mill, I and Dutt... vertised, Engineering News.)

ELKHART, IND.—Bids are ask... 10 a. m., July 6, for constructing ... ft. of from 20 to 30-in. pipe sewer. E... cost, $17,517. A. M. Smith is City Engr.

EVANSVILLE, IND.—Bids are asked by the Board of Public Works, for construction of main sewer in Indiana St. W. F. Wunderlick is City Clk.

MARION, IND.—Bids are asked until noon, July 3, for constructing a sanitary sewer in Washington St. John O. Willson is Clk. Bd. Pub. Wks.

GREENFIELD, IND.—Plans have been ordered for installing a large drain in this city. Bids will soon be asked for. Oscar O. Bever is City Clk.

KOKOMO, IND.—D. P. Davis, Pres. Bd. Pub. Wks., writes that Kokomo is considering a sanitary sewer system, and that the Board will be pleased to correspond with parties relative to this proposition until July 9.

GRAND RAPIDS, MICH.—We are officially informed that CRONIN & ROBERTS, Champaign, Ill., have secured contract for installing sewers in the Michigan Soldiers' Home. L. W. Anderson is City Engr.

NAPERVILLE, ILL.—The contract for 12,225 ft. of sanitary sewers has been let to MONHEIN BROS., Joliet, at $7,200. Alvin Scott, Jr., is Pres. Bd. of Local Impvts.

HARRISBURG, ILL.—Bids are asked until June 30 by E. H. Largent, City Clk., for furnishing material and constructing 1,695 ft. 15-in. and 5,315 ft. 22-in. pipe sewers. B. S. Crains is Engr., Murphysboro.

BLUE MOUND, ILL.—This town is being surveyed in view of having a sewer system installed. It is estimated that the system will cost in the neighborhood of $5,000.

MADISON, WIS.—Bids are asked until July 13 for constructing 2½ miles sewers in the Sherman Ave. Sewer District. John F. Icke is City Engr.

HARLAN, IOWA.—We are officially advised that the City Council has voted favorably on the question of installing about 7,830 ft. of from 8 to 18-in. sewer.

MUSCATINE, IOWA.—Bids are asked until 7.30 p. m., July 2, by the City Recorder for construction of sewer improvements in Main Sewerage District No. 1, consisting about 2,965 ft. sewer. James J. Ryan is City Engr.

CROOKSTON, MINN.—The contract for constructing sewer in Johnson Ave. has been let to JAMES KENNEDY, of Fargo, N. Dak., at $9,565.

MOOREHEAD, MINN.—Bids are asked until 8 p. m., July 6, by O. C. Beck, City Treas., for construction of trunk and lateral sewers, to cost about $75,000. H. E. Robe... City Clk.; Clausson, Burch & Pillsbury, St. Paul, are Consult. Engrs.

MAYVILLE, N. DAK.—Bids are asked until June 30 by J. M. Stewart, City Audr. for construction of sewers in several stree... of Mayville.

ST. LOUIS, MO.—The BUEHLER-C...NLEY CONSTRUCTION CO., it is reported has contract, at $8,480, to enlarge Rocky Branch sewer from Mississippi River to Elliott River.

MARIANNA, ARK.—Bids are asked until 1 p. m., July 21, by the Board of Sewer Commissioners, W. E. King, Secy., for constructing a sanitary sewer in District No. 1. We are officially informed that this work takes in 7¼ miles of 8 and 10-in. pipe sewer, 65 manholes, 10 flush tanks, seven lampholes and two outfall bulkheads. Hiram Phillips is Consult. Engr., 615 Frisco Bldg., St. Louis, Mo.

FORT SMITH, ARK.—Bids are asked until 2 p. m., July 18, by the Board of Improvements, for constructing about 36,300 lin. ft. of concrete, brick and 180,000 ft. of vitrified pipe sewers in Sewer District No. 2. Harry E. Kelley is Chn. Bd. Impvts.; T. R. Bayley is City Engr. (Advertised, Engineering News.)

GUTHRIE, OKLA.—Bids are asked until July 5 for constructing about 2,200 ft. of 6 and 8-in. pipe sewer. W. W. Miller is City Engr.

HOQUIAM, WASH.—VIRGIL SMITH has been awarded contract for installing the East Side sewer.

GARBAGE DISPOSAL.

The names of parties awarded contracts are printed in capital letters.

BERLIN, N. Y.—Berlin is to build a crematory for condemned meat, to cost about $300,000.

TRENTON, N. J.—The contract for a new furnace for the crematory is reported to have been awarded to the DAVIS GARBAGE & FURNACE CO., of Lancaster, Pa., for $3,400.

JACKSONVILLE, FLA.—The Board of Public Works has asked the City Council for authority to expend $25,000 to erect a new crematory.

FORT WILLIAM, ONT.—The Council and Board of Health propose establishing an incinerator to cost about $20,000.

STREETS AND ROADS.

The names of parties awarded contracts are printed in capital letters.

CONCORD, N. H.—Bids are asked until 5 p. m., July 11, for constructing gravel roads in Plaistow, Kensington, South Hampton and Windham, to cost altogether $4,850. A. W. Dean is State Engr.

PRESTON, CONN.—Bids are asked until 1 p. m., June 30, by the Board of Selectmen for construction of a gravel and gravel-telford section of road. N. H. Hall is First Selectman.

WALLINGFORD, CONN. — THOMAS KEARNEY, of Meriden, is stated to have secured the contract for macadamizing and telfording about 4,663 ft. of East Center St., at $5,175.

COLUMBIA, CONN.—Bids are asked until 8 p. m., July 6, by the Board of Selectmen, for three sections of grading and one section of gravel-telford road. J. N. Clark is First Selectman.

WATERBURY, CONN.—Bids are asked, July 3, for grading and paving on the site of the proposed sewerage purification plant. R. A. Cairns is Secy. Bd. Pub. Affairs.

NEW YORK, N. Y.—Bids are asked until 11 a. m., July 9, by Joseph Bermel, Pres. Boro. of Queens, for grading, regulating and laying sidewalks and crosswalks, Washington, First and Freeman Aves., and Academy St.

Bids are asked until noon, July 12, by George Cromwell, Pres. Boro. of Richmond, for resurfacing the roadway of Richmond Road from the summit of South Clove Ave. to the Amboy Road; also for regulating, grading and macadamizing the roadway of Leonard and Wooley Aves. and other streets.

Bids are asked until 11 a. m., July 6, by Bird S. Coler, Pres. Boro. of Brooklyn, for regulating, repaving, with asphalt, granite and brick pavement, the roadways of various streets in Brooklyn.

BEDFORD, N. Y.—Bids are asked until 3.30 p. m., July 10, by the Town Board of the Town of Bedford, at the office of the Town Clerk, at Mount Kisco, for macadamizing, grading and otherwise improving roads leading from Bedford. Joseph E. Merriam is Town Clk.; Bryne & Darling, White Plains, are Engrs. (Advertised Engineering News.)

ALBANY, N. Y.—Bids are asked until 3 p. m., July 2, by the Board of Contract and Supply, for improving Cortland Pl. and Charles St.

BUFFALO, N. Y.—Bids are asked until 11 a. m., July 6, by the Department of Public Works, F. G. Ward, Comr., for repaving North St., from the Circle to Delaware ave.; paving Koons Ave., from McKibbin to Genesee Sts.; paving Alsace Ave. from South Park Boulevard to Abbott Road; repaving Allen St., from College to Wadsworth Sts.

SYRACUSE, N. Y.—The threatened invasion of outside contractors resulted in a cut in bids on paving and sewer work, much of which is under way here. For paving the property owners will designate which kind they want. Bids received on five paving jobs were as follows: Court St., from Salina to Third North, with brick, Central Paving Co., $34,069, and with sandstone between tracks, $41,115; Fred J. Baker, $36,-091, and with sandstone, $41,951; Warner-Quinlan Asphalt Co., $36,347, and with sandstone, $42,800; Nicholas Marnell, $37,-382, and with sandstone, $41,484; Nicholas Marnell (block), $38,312, and with sandstone, $41,8[illegible]; Central City Paving Co. (block), $34,962, and with sandstone, $41,115; C. J. Sullivan, $37,499, and with sandstone, $43,-652. Court St., from Salina to Third North, with asphalt: Central City Paving Co., with brick between tracks, $34,288, with sandstone, $41,027, with Syracuse block, $34,581; Fred J. Baker, with brick, $35,485, with sandstone, $41,638; Warner-Quinlan Asphalt Co., with brick, $35,803, with sandstone, $41,-958. These figures are about 25% less than the City Engineer's estimate.

Sewer contracts were let as follows: C. T. HOOKWAY, various contracts, $6,323; JOHN DAVIS, $1,733; JOHN YOUNG, $3,063.

PLEASANTVILLE, N. Y.—WILLIAM F. M'CABE has been awarded a contract to macadamize certain streets, in Pleasantville, at $30,000.

FREEHOLD, N. J.—Bids are asked until noon, July 11, by the Board of Chosen Freeholders of Monmouth County, for constructing a macadam road over 2 miles long, from Freehold to Colts Neck. John Guire is Dir. (Advertised Engineering News.)

TOMS RIVER, N. J.—Bids are asked until July 10 by the Board of Chosen Freeholders for building a gravel road in the Township of Berkeley, about 36,603¼ ft. in length.

SOMERVILLE, N. J.—We are officially advised that WILLIAM HARDGROVE, of Somerville, has secured contract to macadamize more than three miles of road in Bridgewater Section, Somerville County, at $29,979. The only other bid on this work was that of Dickinson & Gill, Dover, at $41,563. J. Doughty, Jr., is County Engr.

CARBONDALE, PA.—Bids are asked until 8 p. m., July 2, by the City, H. T. Williams, Clk., for repaving Main St. from Eighth to Salem Aves. (Advertised Engineering News.)

JENKINTOWN, PA.—The contract for macadamizing seven miles of the Old York Road has been let to JOHN M'MENASEY, of Philadelphia, for $63,000. State Road Commissioner Joseph W. Hunter.

INDIANA, PA.—Bids are asked until 7.30 p. m., June 29, by the Borough of Indiana, for paving about 50,000 sq. yds. R. M. Mullen is Boro. Engr. (Advertised Engineering News.)

OIL CITY, PA.—The contract for the construction of the state road between Oil City and Salina was awarded several weeks ago to J. A. FREDERICKS, of Franklin.

HAZELTON, PA.—At a joint session of Councils, held recently, the STANDARD BITHULITHIC PAVING CO. was awarded the contract for paving Wyoming, Laurel and Church Sts.

WILMINGTON, DEL.—We are officially advised that on June 19 THEOBALD HARSCH, of Narberth, Pa., was awarded the contracts to macadamize two sections of the Foulk Road. The first, one mile, at $6,000, and the second, 2 1-3 miles, at $20,000. Francis A. Price is State Highway Comr. of New Castle County.

BALTIMORE, MD.—The municipal Board of Awards has awarded the following contracts for paving to the MARYLAND PAVEMENT CO., 6 East Lexington St.: Edmonson Ave., with asphalt blocks at $9,802, and Fremont Ave., with asphalt blocks, at $19,-595; and to PATRICK FLANIGAN & SON, 120 East Lexington St., Lexington, Calvert and Lee Sts., with Belgian blocks, at $21,955.

Bids are asked until 11 a. m., July 5, by the Board of Awards, for curbing and paving with vitrified brick, Lexington, from Charles to Liberty Sts. B. T. Fendall is City Engr.; E. Clay Timanus is Pres. Bd. of Awards.

Bids are asked until noon, July 14, by W. W. Crosby, Ch. Engr. Maryland Geological Survey Comn., for improving a portion of the Public Highway between Baltimore and Washington.

FORTRESS MONROE, VA.—Bids are asked until noon, July 27, by Capt. R. H. C. Kelton, Q. M., for constructing concrete walks, brick gutters and resurfacing roads at Fort Monroe. (Advertised Engineering News.)

NORFOLK, VA.—We are officially informed that for paving Main St., Norfolk, the following bids were received June 23: Memphis Asphalt Co., $75,602; Atlantic Bitulithic Co., $84,787; W. A. Young, for creoresinate, $94,719; Southern Construction Co., for asphalt, $68,577. W. T. Brooke is City Engr.

FULTON (Whitefield post-office) W. VA.—Bids are asked until July 2 by Herman L. Arbenz, 1506 Chapline St., Wheeling, for paving with fire brick, 12,000 sq. yds. of the National Road in Fulton.

SAVANNAH, GA.—Bids are asked until July 3, by George M. Gadsden, Dir. Pub. Wks., for paving 9,500 sq. yds. with No. 1 asphalt blocks.

DONALDSVILLE, LA.—The City has decided to pave two of its streets, at a cost of $50,000, and the Mayor is authorized to advertise for bids at once.

NASHVILLE, TENN.—The Realty Trust Co. has awarded to FLEMING & DONAHUE the contract for the making of street improvements in the South Heights plat of lots, which the company has recently placed on the market, the cost of the improvements amounting to $45,000.

CLEVELAND, OHIO.—Bids are asked until July 7, by the Board of County Commissioners, Julius C. Dorn, Clk., for completing the Depot Road Improvement, in Strongsville Township; also grading the Lake Shore Boulevard.

MANSFIELD, OHIO.—Bids are asked until noon, July 3, by the Board of Public Works for grading and paving Boughton Ave., and for grading and laying walks on West Blanche St. Loren Keith is City Engr.

DELAWARE, OHIO.—Bids are asked until 2 p. m., July 13, by E. S. Mendenhall, County Surv., for constructing the Harlem and Center Village road improvement.

KENTON, OHIO.—Bids are asked until noon, July 11, by Justin Brewer, County Audr., for macadamizing, grading, draining and otherwise improving 4½ miles of road in Lynn and McDonald Townships, and 3½ miles in Lynn and Buck Townships. J. W. Gilmore is County Surv.

MUNCIE, IND.—The contract for resurfacing some of the streets has been let to JOHN GUBBINS. Estimated cost of improvements, $21,000. John A. Potter is City Engr.

VERSAILLES, IND.—Bids are asked until 1 p. m., July 3, by Nicholas Volz, County Audr., for constructing more than ten miles of macadamized road in Ripley County.

SWAYZEE, IND.—The Town Board of Swayzee has awarded the contract for paving with brick Lyons St. to J. A. HARDING & CO., of Pendleton. MILLIKAN & CARTER, of Marion, was given a contract for paving Mark St.

COVINGTON, IND.—Bids are asked until July 5 and 6, by the Commissioners of Fountain County for constructing gravel roads in Mill Creek, Liberty and Fulton Townships.

VINCENNES, IND.—Bids are asked until 1 p. m., July 7, by the commissioners for construction of gravel road, known as the Frick Road, in Steen Township.

BROOKVILLE, IND.—Bids are asked until 1 p. m., July 2, by the Commissioners of Franklin County, for construction of over one mile of gravel road.

CHENOA, ILL.—An ordinance has been adopted here providing for a system of concrete walks, to cost about $10,000. E. L. Beach is Mayor.

BLOOMINGTON, ILL.—The Council has passed a resolution providing for paving West St. with asphalt. Probable cost, $14,-000. Elmer Folsom is City Engr.

PAXTON, ILL.—The City Council at Paxton has awarded the contract to H. C. FINLEY, of Hoopeston, Ill., for the paving of some of the streets of Paxton, at $45,000.

OSHKOSH, WIS.—Bids are asked until June 7, by the Board of Public Works, W. A. Marden, Chn., for furnishing material, grading and macadamizing portions of Jefferson Ave. and Dale St. George H. Randall is City Engr.

SIOUX CITY, IOWA.—We are officially advised that the KETTLE RIVER QUARRIES CO., Minneapolis, Minn., has secured the contract to pave Fourth St., from Pearl St. to Viaduct, with creosoted wood blocks, at $2.18 a sq. yd: J. M. Lewis is City Engr.; A. A. Smith is City Clk.

DULUTH, MINN.—GEO. R. KING, Meseba Block, is stated to have secured the contract for paving, with tar macadam, 10th Ave., East, at $10,974.

ST. PAUL, MINN.—The City Council, H. G. Haas, Pres., has let contract for macadamizing University Ave., from Dale St. to Prior Ave., to the GENERAL CONTRACTING CO., Minneapolis, at $135,000.

JEFFERSON CITY, MO.—Bids are asked until July 7, by the City Clerk, for paving, grading and curbing McCarty St., in this city. E. F. Harding is City Engr.

FORT SMITH, ARK.—Bids are asked until 2 p. m., July 18, by the Board of Improvements, Harry E. Kelley, Chn., for about 650,000 sq. yds. brick pavement. T. R. Bagley is City Engr. (Advertised Engineering News.)

FORT SAM HOUSTON, TEX.—R. G. SCOTT, of San Antonio, has contract at $44,-320 for constructing roads, walks and drains at army post.

GUTHRIE, OKLA.—Bids are asked until July 5, for paving six blocks, about 11,000 sq. yds., with bitulithic or brick, and for 4,500 lin. ft. of curbing and gutter. W. W. Miller is City Engr.

SAN DIEGO, CAL.—Bids are asked until July 2, by J. T. Butler, City Clk., for grading ten streets in this city.

GRAND VALLEY, ONT.—Bids are asked until noon, July 6, by William McIntyre, Clk., for constructing cement sidewalks and crossings in Grand Valley.

OTTAWA, ONT.—The City Council has given notice of its intention to construct bitulithic pavement on Elgin St., cost $60,-862. Also a number of concrete sidewalks.

TORONTO, ONT.—The City Engineer has recommended asphalt pavement on Pape Ave., cost $26,602; on Christie St., cost $22,156; on St. George St., cost $18,136; brick pavement on Royce Ave., cost $23,000, and macadam on Winchester St., cost $20,830.

THE CONSTRUCTION & PAVING CO. has secured a contract to pave Jarvis St., from Queen to Bloor Sts., at $30,875; and Adelaide St., from Bay to York Sts., at $7,828. C. H. Rust is City Engr.

The City has given notice of its intention to pave several streets with asphalt, vitrified block brick and cedar block, and to lay concrete sidewalks on various streets. W. A. Littlejohn is City Clk.

MOOSE JAW, SASK.—Contracts have been let to the PETTYPIECE SILEX STONE CO., Amherstburg, Ont., for laying granolithic sidewalks in this town.

MANUFACTURING PLANTS.

The names of parties awarded contracts are printed in capital letters.

PEABODY, MASS.—COBURN & BOUGHTON, Old South Bldg., Boston, have been awarded contract for constructing factory buildings at Peabody for the A. C. Lawrence Leather Co., to cost about $100,000. W. B. Page, 34 North Market St., Boston, is Arch.

BOSTON, MASS.—E. W. CLARK, 7 Water St., has been awarded contract for constructing a shoe factory building in South Boston for the Boston Wharf Co. (W. H. McElwain Co., 348 Congress St., South Boston, Mass, lessee). Cost about $90,000. M. D. Safford, 259 Summer St., is Arch.

ATHOL, MASS.—It is reported that the plant of L. S. Starrett Co. at this place will be enlarged by the erection of three buildings. Frost, Briggs & Chamberlain, of Worcester, are Archs.

SPRINGFIELD, MASS.—The Springfield Metal Body Co., manufacturers of aluminum automobile tops and bodies, will begin work at once on an addition which, it is reported, will makes its plant the largest in the world.

PAWTUCKET, R. I.—The Providence Braid Co. has purchased a site in the South Woodlawn district of Pawtucket and will erect a mill 180 × 70 ft. for the manufacture of braids and tapes within the next six months. The mill will be built of brick, one story in height and will cost about $40,000.

CENTRAL FALLS, R. I.—The William A. Harris Steam Engine Co. has purchased a site at Central Falls, R. I., and plans are now being prepared for the building of new works.

HARTFORD, CONN.—The B. H. HIBBARD CO., of New Britain, has been awarded the contract to build two 3-story factories, one 220 × 50 ft. and the other 120 × 200 ft., for the Whitlock Coil Pipe Co., of Elmwood. Cost is estimated at $100,000.

SYRACUSE, N. Y.—The Solvay Foundry Co., of Syracuse, just incorporated, is to build and equip a $100,000 plant in Solvay for the manufacture of malleable iron castings. Plans have been drawn by C. D. Wilsey, Arch., for the main building, 360 × 250 ft., of steel or reinforced concrete, to cost about $60,000. There will also be a coal trestle and siding. The incorporators are Frederick Frazer, Charles R. Jones, Hendrick S. Holden and William W. Wilard, of Syracuse, and Ogden P. Letchworth, of Buffalo.

FULTON, N. Y.—It is reported that the American Woolen Co. will enlarge its plant by the erection of a new mill.

HORNELL, N. Y.—The Merrill Silk Glove Co., which is now erecting a 3-story addition to its factory on Canisteo St., will also build and equip a new machine shop at once.

YORK, PA.—A building fully equipped for the manufacture of stone will be erected by the Standard Stone Co.

PHILADELPHIA, PA.—The F. J. Stokes Machine Co., Ninth and Thompson Sts., is receiving estimates for the construction of a 2-story machine shop, 45 × 115 ft., to be erected at 17th and Cambria Sts.

COLUMBIA, PA.—The Keeley Stone Co. has invited bids for the erection of a 6-story addition to its factory.

NAZARETH, PA.—M. H. Kessler will erect a 2-story concrete factory here to cost $25,-000.

BERWICK, PA.—T. J. OCHS, of Allentown, has been awarded the contract to build a silk mill at this place for E. N. Baer & Co.

POTTSTOWN, PA.—The Light Manufacturing Co. has invited bids for the erection of a 4-story concrete and steel pattern shop, 60 × 100 ft.

SCRANTON, PA.—Lewis Hancock, Arch., Coal Exchange Bldg., is drawing plans for the erection of a 3-story silk mill to be built at a cost of $50,000.

The Penn Baking Co., 351 Brook St., is taking bids for the erection of a $30,000 bakery.

ROXBORO, N. C.—The managers of the Roxboro Cotton Mills have decided on a 10,000-spindle addition, which will represent an investment of approximately $300,-000. C. R. Makepeace & Co., of Providence, R. I., have been engaged to prepare the plans and specifications. The main mill building will be 130 × 266 ft.; boiler and engine house, 50 × 100 ft.; warehouse, 50 × 100 ft., and there will be 50 modern cottages for the operatives and their families. Construction work will begin July 1. Contracts for the machinery will not be awarded until about the end of July.

ROCK HILL, S. C.—The Aragon Cotton Mills will erect a 20,000-spindle mill here at once. Alexander Long is Pres.

ATLANTA, GA.—The Walton Cotton Mills at Monore have decided to enlarge, and will spend $50,000 in this direction, for which new stock will be issued. It is proposed to double the capacity of the mill, which now has 5,000 spindles.

ROSSVILLE, GA.—Designs have just been completed for the Peerless Woolen Mills, which will be erected at Rossville by J. L. Hutcheson and others. The building will be of brick, 286 × 261 ft. A part of the structure will be two stories and the remainder one story. Cost will be $40,000.

NEW ORLEANS, LA.—Louis Lehle, Arch., 916 Schiller Bldg., Chicago, is preparing plans for a large brewery to be built at New Orleans for the Dixie Brewing Co. It will comprise a number of buildings, the main building to be 7-story, 175 × 300 ft. The plant will cost $250,000.

TOLEDO, OHIO.—The Toledo Steel Foundry Co., capital $250,000, has been organized to build a plant for manufacturing steel castings and other steel products. Chas. A. Parsons, of Toledo, is Gen. Mgr.

ANDERSON, IND.—The Remey Electric Manufacturing Co. has awarded a contract to BERT WRIGHT, of this city, for the construction of a new factory building.

FT. WAYNE, IND.—The Centlivre Brewing Co. is planning the erection of an addition to its plant at a cost of $75,000.

VINCENNES, IND.—The W. H. Howell Manufacturing Co., incorporated with $80,000 capital stock, will establish a factory to manufacture paper shipping cases. W. H. Howell, E. C. Anderson and F. M. Parish are the directors.

DETROIT, MICH.—ROGERS & MACFARLANE have been awarded the contract for the erection of the new Murphy ice plant here.

CHICAGO, ILL.—JOHN H. JONES, 59 Clark St., has the contract for the erection of a power plant and a cast house at 109th St. for the Federal Furnace Co. The buildings will be 1-story, the former 250 × 68 ft., the latter 230 × 65 ft. In connection with this plant there will be also an office building, for which L. E. Stanhope, Arch., 218 La Salle St., is preparing plans. The three structures will cost about $100,000.

Robert S. Smith, Arch., 818 Adams Express Bldg., is completing plans for and will take figures next week on a factory to be built at the southwest corner of Monroe and Aberdeen Sts. for Henry E. Miller and F. E. Bidwell. It will be 2-story, 50 × 100 ft., and cost $20,000.

CLINTON, IOWA.—The Clinton Sugar Refining Co., backed by the National Candy Co., 118 to 130 East Superior St., Chicago, has had plans made for a plant to be built at Clinton. The company has been incorporated with a capital of $1,500,000. The plant will comprise several buildings of various dimensions, be of brick and mill construction, and cost $600,000. Work is to be begun at once.

RAPID CITY, S. DAK.—The Boynton Scale Co., of Toledo, Iowa, is planning the erection of a large new plant here. They have a capital of $100,000.

COLORADO SPRINGS, COLO.—J. B. Daniels, Supt. Portland Gold Mining Co., writes that it will erect a 400-ton cyanide plant, to treat tailings. The building will be 180 × 153 ft.

BOISE, IDAHO.—C. A. Phelps, Pres. of the Phelps Mfg. Co., of Weiser, Idaho, is planning to establish a plant here for the manufacture of railroad spikes.

SEATTLE, WASH.—Pacific Coast Malting Co. will begin at once the construction of its new malting plant.

NORTH YAKIMA, WASH.—It is reported that a factory for the manufacture of ethyl-alcohol will be erected here at a cost of $20,000.

SAN FRANCISCO, CAL.—John Bollman & Co. have announced that their tobacco factory at 695 Front St. will be rebuilt.

MISCELLANEOUS CONTRACTS.

The names of parties awarded contracts are printed in capital letters.

DITCH.—Eldora, Iowa.—Bids are asked until noon, July 2, for construction of tile drain ditch in Wiemer Drainage District. Jay S. Newcomer, County Audr.

DRAINAGE DITCH. — Willmar, Minn. — JERRY SHERWOOD, of Willmar, has been awarded contract for construction of the Grass Lake ditch, at $22,377.

SUBWAY.—Richmond, Ind.—The City Council will receive bids for the construction of a subway under railway tracks at West Second St. Estimated cost, $20,000.

PORTLAND CEMENT.—Ottawa, Ont.—Bids are asked until 4 p. m., June 30, for supplying 1,750 bbls. Portland cement in sacks. L. K. Jones, Secy. Dept. Rys. and Canals.

DIKE.—Columbia, La.—Bids are asked until July 2, noon, for construction of the Sandy Bayou dike, Caldwell Parish; about 16,000 cu. yds. N. M. Davis, Pres. Police Jury.

CANALS.—Leesburg, Fla.—Bids will be received until July 14 by L. M. Johnson, Town Clk., for constructing two canals from Lakes Harris and Griffin, each terminating with a basin.

STEAM SHOVEL WORK.—Davenport, Iowa.—Bids are asked for steam shovel work in Missouri by the General Construction Co., of Davenport, Iowa. (Advertised Engineering News.)

CONCRETE DAM.—Womelsdorf, Pa.—Bids are asked by W. W. Lengel, Boro. Secy., until noon, July 1, for erection of a concrete dam across the Tulpehocken Creek at Charming Forge.

SUBWAY.—Toronto, Ont.—A subway is to be built under the tracks of the Grand Trunk and Canadian Pacific Ry. lines at Landsdowne Ave., to cost the city $100,000. C. H. Rust is City Engr.

DREDGING.—Decatur, Ind.—F. P. WADE, of Winamac, Ind., has been awarded contract for dredging the Lob ditch and a 3-mile section of the Wabash River, ending near Geneva, Ind., at $33,500.

DRAINAGE DITCH.—Pocahontas, Iowa.—Bids will be received until July 10 by G. W. Smeltzer, County Audr., for constructing Drainage Ditch No. 22, containing, approximately, 920,000 cu. yds.

RIVER APPROACH.—New Orleans, La.—Bids are asked until July 11, for constructing river approach and making back fill at Placquemine Lock, La. Col. Clinton B. Sears, Corps Engrs., New Orleans.

DAM.—Cody, Wyo.—Plans, specifications and bidding sheet for the Corbett Dam, Cody, Wyo., are on file at office of Engineering News, New York. Bids are asked until July 10, as advertised in Engineering News.

DITCH WORK.—Muscatine, Iowa.—Bids will be received until July 3 by A. S. Lawrence, County Audr., for cleaning and reopening the Goshen Ditch. Total estimated amount of work to be done, 16,390 cu. yds.

DAM.—Cincinnati, Ohio.—Bids are asked until 1 p. m., July 27, by Maj. J. G. Warren, U. S. Engr., 415 Custom House, for preparing Dam No. 9, Muskingum River, Ohio, with concrete. (Advertised Engineering News.)

TUNNEL.—Salt Lake City, Utah.—Plans, specifications and bidding sheet for construction of Strawberry tunnel are on file at office of Engineering News, New York. Advertised in Engineering News. Bids are asked until Aug. 30.

RETAINING WALL.—Denver, Colo.—The DENVER & PUEBLO CONSTRUCTION CO., Railroad Bldg., Denver, has been awarded contract for building the Cherry Creek retaining wall, at $96,000. Length, 11,300 ft. J. B. Hunter, City Engr.

DREDGING.—Portland, Me.—The following are the bids opened June 14 by Lieut.-Col. W. M. Black, Corps Engrs., for dredging Cocheco River, N. H.: Eastern Dredging Co., Boston, Mass., $15,220, and Simon J. Donovan, Boston, Mass., $14,618.

TUG.—Cleveland, Ohio.—The Great Lakes Towing Co. has awarded a contract to the AMERICAN SHIPBUILDING CO. for building a wrecking tug and lighter, which will be built at the Buffalo, N. Y., plant of this company. They will cost about $225,000.

STEEL BARS.—Billings, Mont.—Bids are asked until 2 p. m., July 24, at the office of the U. S. Reclamation Service, for furnishing 405,000 lbs. of steel bars for concrete reinforcement. Specifications are on file at office of Engineering News, New York. Advertised, Engineering News.

CEMENT.—Portland, Ore.—The Secretary of the Interior has rejected the bids which were recently opened at Portland, Ore., for furnishing Portland cement for the Okanogan project, Washington, and the Umatilla project, Oregon. The bids were rejected on the ground that they were too high.

PORTLAND CEMENT.—Chicago, Ill.—Bids are asked until 10 a. m., July 7 at the office of the U. S. Reclamation Service, 876 Federal Bldg., Chicago, for 45,000 bbls. of Portland cement. Advertised, Engineering News. Specifications are on file at office of Engineering News, New York.

READERS' WANTS FOR THOSE IN THE MARKET

The readers of ENGINEERING NEWS are constantly in the market for great quantities of machinery, tools and general supplies. While our thousand advertisers are usually able to furnish the material desired, yet there are many things wanted by our readers that are not advertised, although connected with engineering and contracting directly or indirectly. This department (R-W) is for this class of inquiries, and we urge our readers to keep us informed. Enclose five cents in stamps and we write to a number of leading manufacturers without further cost. When writing to our advertisers, who are the leaders in their respective lines, **mention Engineering News.** Have you a copy of our Buyers' Guide? **Engineering News Can Help Buyers.**

SECOND-HAND LEVEL.—Batesville, Miss.—W. S. Bobo, Batesville, Miss., writes us that he is in the market for a second-hand level not less than 18 ins.

CASTINGS.—New Orleans, La.—Grant & Newton, 917 Antonine St., New Orleans, La., write us that they are in the market for small, steel, malleable and cast-iron castings, 25 to 40 lbs.

DRY LAND DREDGE OR DITCHING MACHINE.—Dubuque, Iowa.—We are informed that Thomas J. Mulgrew, Dubuque, Iowa, is in the market for a dry land dredge or ditching machine.

SECOND-HAND STEEL RAILS.—Belize, British Honduras.—R. S. Turton & Co., Albert and Bishop Sts., Belize, British Honduras, write us that they are in the market for eight or ten miles of light second-hand rails.

ASPHALT BREAKING MACHINE.—Philadelphia, Pa.—We are in receipt of a letter from the American Paving & Construction Co., 211 South Ninth St., Philadelphia, stating that it desires the names of firms manufacturing a machine for cutting and breaking asphalt for a 12,000-ft. ditch.

STONE MOUND.—Charleston, S. C.—Bids were received on June 21 by Capt. G. P. Howell, Corps of Engrs., for furnishing stone and constructing a mound on South Jetty, at Winyah Bay. Advertised in Engineering News. Roderick G. Ross, Jacksonville, Fla., submitted lowest bid, at $21,670.

CANAL.—Billings, Mont.—Bids were received as follows on June 20 for Division 3, Huntley Project, for about ten miles of main canal and seven miles of high line canal: Hughes & Olson, Butte, Mont., $77,610; Cook Construction Co., Des Moines, Iowa, $81,600; Billings Construction Co., Billings, Mont., $104,765.

AIR COMPRESSORS, ETC.—Charleston, S. C.—Bids are asked until 11 a. m., July 21, by Bureau Yards and Docks, Navy Dept., Washington, for two air compressors and accessories for Charleston Navy Yard. Mordecai T. Endicott, Ch. of Bureau. Specifications for this work are on file at office of Engineering News, New York.

CANAL.—Browning, Mont.—Bids are asked until 2 p. m., July 31, at the office of the U. S. Reclamation Service, Browning, for construction of about 14 miles of canal. Cyrus C. Rabb is Engr., Browning; E. A. Hitchcock is Secy. Specifications are on file at office of Engineering News, New York. Advertised, Engineering News.

DREDGING.—Buffalo, N. Y.—The following bids were received on June 8 by Francis G. Ward, Comr. of Pub. Wks., for dredging Buffalo Inner Harbor, 80,000 cu. yds. (price given is per cu. yd.): Buffalo Dredging Co., Buffalo, 29½ cts.; The Lake Erie Dredging Co., Buffalo, 30 cts., and Great Lakes Construction Co., Buffalo, 32 cts.

GARDEN CITY, KANS.—Bids are asked until til 2 p. m., July 6, at the office of U. S. Reclamation Service, for construction of deep and shallow wells, suction pipe, pumping stations, siphons, concrete-lined conduits and fencing. E. A. Hitchcock is Secy. Advertised, Engineering News. Plans, specifications and bidding sheet are on file at office of Engineering News.

FIRE ALARM SYSTEM.—New York, N. Y.—The Finance Committee of the Board of Aldermen will report favorably on a resolution giving John H. O'Brien, Fire Comr., $25,000 for the preparation of plans for the installation of a new fire alarm system, it is reported. The commissioner purposes to install a new system, which is to cost about $2,000,000.

DREDGING.—New York, N. Y.—The following are the bids opened June 20 by J. A. Bensel, Comr. Docks and Ferries, for dredging in the North, East and Harlem Rivers, 100,000 cu. yds. (price given per cu. yd.): R. G. PACKARD CO., 129 Pearl St., 42 8-9 cts., total cost $42,889 (awarded contract); Morris & Cumings Dredging Co., 17 State St., 46.64 cts.; W. H. Beard Dredging Co., 21 State St., 44.5 cts.

CANAL.—Crowley, La.—The Union Rice & Irrigation Co., Limited, has been organized with a capital stock of $1,600,000 to build a 32-mile canal from Bayou Courtabla to the Mermentau River. New country along the line will be devoted to the culture of rice and cotton. The canal will connect the southwestern part of Louisiana with the Mississippi River. J. Franklin Schell, of Opelousas, is at the head of the enterprise.

DRAINAGE DITCHES.—Poplar Bluff, Mo.—Bids are asked until July 6, it is reported, for digging five drainage ditches and three levees in this county. Total length will be about 80 miles, with about 2,168,000 cu. yds. earth excavation. Levees are about 19 miles long and will contain about 475,000 cu. yds. earth. There are six wooden bridges, one 60-ft. span iron bridge and two railroad trestles to be built, and two iron bridges to be removed and replaced. Geo. C. Orchard, Clk. County Court.

CANAL WORK.—Glendive, Mont.—The Secretary of the Interior has executed a contract with D. H. FREEMAN & CO., of St. Cloud, Minn., providing for the construction and completion of the work of Division 1, main canal, lower Yellowstone project, Montana and North Dakota. Division 1 consists of 7½ miles of canal, and involves the excavation of 823,000 cu. yds. of material, 25,000 cu. yds. of overhaul, 1,000 cu. yds. of puddling and 360 lin. ft. of terra-cotta pipe. The bid of the contracting company was $208,490.

WIRELESS TELEGRAPH APPARATUS.—Washington, D. C.—Bids were opened June 16 at the Navy Pay Office, Washington, D.C., for six sets of wireless telegraph apparatus complete, except antennae, to be delivered at the Washington Wireless Telegraph Station. The bids were: American De Forest Co., St. Louis, $13,200; International Telegraph & Construction Co., Broad St., New York, $22,500; alternate, $23,178; Stone Telegraph & Telephone Co., 31 State St., Boston, $24,000; Telefunken Wireless Telegraph Co., 1001 Chestnut St., Philadelphia, $23,500 ($4,000 each); Clark Electric Engineering Co., Detroit, $84,000; Massie Wireless Telegraph Co., Providence, R. I., $36,000; National Electric Signaling Co., Pittsburg, $75,000. Foote, Pierson Co., New York, received specifications but did not bid.

DRAIN.—Nevada, Iowa.—Bids are asked until June 29 by the County Board of Supervisors, at the the office of O. B. Peterson, County Audr., for furnishing material and constructing the Warren-McCallsburg Drain No. 8, requiring about 20,746 cu. yds. excavation in Sections 1 and 2, and 2,000 ft. 16-in. tile drain in Section 3; also the Colo-New Albany Drain No. 9, requiring about 2,830 cu. yds. excavation in Section 1, 7,360 ft. 18-in., 3,260 ft. 15-in. and 1,600 ft. 12-in. tile drain in Section 2, and 2,600 ft. 10-in. tile drain in Section 3.

CANAL.—Albany, N. Y.—Bids are asked until noon, July 25, on contract No. 15, Champlain Canal, Section 3, for excavating the canal and protecting its sides and constructing Lock No. 11, Dam No. 4, and Lock No. 12, Dam No. 5, and appertaining structures, a spillway, a highway, two masonry culverts, five bridges with their piers and abutments and other incidental details, between Lake Champlain at Whitehall, Sta. 0-73, and Sta. 356 on Wood Creek, about 0.6 mile north of Comstock's P. O. Length of contract 6.8 miles. Sheets 1 to 131, inclusive, and sheet 109A. Estimated cost, $1,380,760.

TUNNEL CHANGES.—Chicago, Ill.—Bids will be received at the office of W. W. Gurley, 914 Marquette Bldg., 204 Dearborn St., Chicago, until noon, July 5, by the Receivers of the Chicago Union Traction Company, James H. Eckels and Marshall E. Sampsell, for lowering and making changes in Van Buren St. tunnel, under the south branch of the Chicago River; also for the building of a new roof over the river section of the tunnel under south branch of the Chicago River at Washington St.; also for the building of a new roof of the tunnel under the Chicago River at La Salle St. Samuel G. Artingstall, Room 439 Postal Telegraph Bldg., Engr.

CANAL.—Montreal, Que.—The charter of the Montreal, Ottawa & Georgian Bay Canal Co. has been extended by the railway committee of the House of Commons to May 1, 1908, as the time for beginning work, and to 1914 as the time for completing the same. The company is authorized to increase its capital stock from $10,000,000 to $50,000,000 and to issue bonds to the extent of $100,000,000. The charter provides that the Government may take over the works at any time and recoup the company for its outlay up to the date of transfer. Promoters of the company are English capitalists. The company proposes to build a canal from Georgian Bay to Montreal. Surveys indicate that the canal can be constructed for about $100,000,000 and be capable of accommodating vessels drawing 20 ft. of water.

DERDGING.—Bridgeport, Conn. — Bids were received as follows, on June 21, by Major Harry Taylor, Corps Engrs., we are officially advised, for dredging in Bridgeport harbor: (1) price per cu. yd., 1st division, 293,000 cu. yds.; (2) price per cu. yd., 2d division, 225,000 cu. yds.; (3) price per cu. yd., 3d division, 161 cu. yds. All bids except that of P. Sanford Ross Co. were for separate divisions: Morris & Cumings Dredging Co., (1) 11 4-10 cts.; John P. Randerson, (1) 15½ cts.; (2) 12 cts.; (3) 17 3-4 cts.; R. G. Packard Co., (2) 20 cts.; W. H. Beard Dredging Co., (1) 11 2-10 cts.; International Contracting Co., (1) 13 4-10 cts; (2) 13 4-10 cts.; P. Sanford Ross Co., Inc., (1) 12 9-10 cts.; (2), 12 9-10 cts.; (3) 12 9-10 cts.; price based on contract for whole work; Seeley-Taylor Co., (2) 14 cts.; (3), 20 cts.; Atlantic Dredging Co., (2) 12 7-10 cts.

BATTLESHIPS.—Washington, D. C.—Bids were opened June 23, at the office of the Secretary of the Navy, Washington, D. C., for the construction of the battleships "South Carolina" and "Michigan," (Nos. 26 and 27). The bids follow. Class 1 is the construction of the vessels, with hull, equipment and machinery according to the department specifications; class 2, hull and equipment according to government specifications; machinery, according to bidder's specifications. There was no bid on more than one of the vessels. Time of completion is 42 months, unless stated: New York Ship Building Co., Camden, N. J., Class 1, $3,585,000; time, 40 mos.; Class 2, Parsons type steam turbine engines, with shafts and propellers, $3,900,000; Class 2, Parsons type, with three shafts and propellers, $3,850,000; Newport News Shipbuilding & Dry Dock Co., Newport News, Va., Class 1, $3,673,000; Class 2, $3,813,000; Class 2, with two 144-in. Curtis steam turbines, $3,963,000; Class 2 with two 120-in. Curtis steam turbines, $3,753,000; Class 2, with two 120-in. Curtis steam turbines (alternate), $3,713,000; Fore River Shipbuilding Co., Quincy, Mass., Class 2, with twin C... bines reversible, 144-in. d... 19½ knots, $3,945,000; Cla... Curtis steam turbines, we... machinery, 1,527 tons, $... with twin 120-in. Curtis tur... $3,719,000; Class 2, twin ... 1,378, $3,780,000; Class 2, t... tons, $3,689,000; William ... Shipbuilding & Engine Co... Class 1, $3,540,000, time 41 ... with Parsons steam turb... Union Iron Works, San Fra... $4,250,000.

U. S. POSSESSIONS A... CUBA.

The names of parties award... printed in capital ...

SUCTION DREDGES.—Pa... for two sea-going suction d... awarded by the Isthmian ... sion to the MARYLAND ST... timore, Md., at $362,000 ea...

STEEL WHARF SHEDS.—... We are officially informed t... the construction of two steel ... Manila Harbor have been re... too high, and the work will be...

ENGINEERING SUPPLIES... Bids are asked until 10:30 ... at the Office of the Isthmian ... mission, Washington, D. C., fo... pig iron; 100,000 tie plates; ... ing steel; platform scales; t... cellaneous hardware.

RAILROADS.—Cuba.—The ... resentatives has voted a subsi... for the building of short rail... Van Horne branch line projec... of $6,000 per kilometer. An a... open the subventions to publi... defeated, and it was left to the ... decide which companies shall ... subsidies.

RAILROAD.—Manila, P. I.—... Railroad Co. has been incorpor... Jersey, with a capital stock of ... build and operate lines in the ... Islands. The incorporators ... Schuster, 24-26 Pine St., New Y... F. Taylor, 54 Wall St., New York ... Rattray, Hasbrouck Heights, N...

STEEL.—Olongapo, P. I.—Bid... until July 24, by the Bureau ... and Accounts, Navy Department, W... ton, D. C., for 13 riveted steel ... weighing about 35,000 lbs., and ... purlins, weighing about 21,000 ... ferroinclave steel roofing, sufficient to cover 11,000 sq. ft., for the roof of building No. 3, at the Naval Station, Olongapo, P. I. H. T. B. Harris, Paymaster-Gen. U. S. N.

MEXICO.

MEXICO CITY, Mexico, June 20.—The Hidalgo & Northeastern R. R., which was purchased a few months ago by the National R. R. Co., of Mexico, is to be extended from its present northern terminus to the port of Tuxpam as soon as the necessary surveys are completed and approved by the federal government. The road now runs from Mexico City to Tortugas, and has a branch line from Pachuca to Iola. The plans of the new owners not only call for the extension of the road to Tuxpam, but also for the widening of the gage of the existing line and converting the roadbed and track throughout to standard width. While the present arrangements do not contemplate the building of the line further than Tuxpam, it is understood that it will later be extended up the Gulf Coast to the port of Tampico, 100 miles north of Tuxpam. It is said that the concession which the Mexican Central holds from the Mexican Government gives that road the exclusive right to the Tampico traffic. Negotiations are pending looking to a modification of this concession whereby the Hidalgo & Northeastern may be allowed to share in the Tampico traffic in return for which the National will permit the Mexican Central to build across its exclusive territorial zone, which borders the Rio Grande from Matamoros to a point opposite Del Rio, Texas, a distance of more than 500 miles. Plans are already being prepared under direction of the Federal Government for extensive harbor and port works which will be constructed at Tuxpam in order to accommodate the traffic that is expected after the government railroad is extended to the place.

The Intercontinental Ry. Syndicate, Ltd., is a British corporation which is preparing to build several hundred miles of railroad in Mexico. It obtained a concession from the Mexican government several months ago for building a standard gage railroad system in the central portion of the country. John M. Wiley, Pres. and Ch. Engr. of the syndicate, has had the survey made for a road between Guadalajara and San Felipe, connection being made with the National Railroad at the latter place. The route of this line is parallel with that which the National has planned to build. The Intercontinental road will cross the Mexican Central road at Leon. It is stated by Mr. Wiley that the syndicate has ample financial backing to carry out its plans and that there will be no unnecessary delay in beginning construction.

S. W. Miller, Ch. Engr. of the Pan-American R. R., states that about 65 miles of track have been laid below Tonala, in the state of Chiapas, and that there are about 85 miles yet to be built through Tapachula to the port of San Benito. Mr. Miller says that the road should be completed to San Benito by July, 1907.

The Monte Alto & Tlalnepantla R. R. Co., which was recently organized in the city of ... composed of some of the leading ... men of Mexico, among the stockholders being Pablo Macedo, Fernando ... Julio M. Limantour and Emilio Pimentel. The company has a capital stock of $... It will build a railroad from Monte Alto, in the state of Mexico, to Tlalnepantla, where it will connect with the National R. R. Andres S. Aguayo, of Mexico City, is Gen. Mgr.

The Panuco Mountain & Monclova R. R.

Co. is building a railroad 50 miles long in the state of Coahuila. A number of Americans who have extensive mining interests in that section are providing the money with which to build the line. It will connect with the Mexican International R. R. at Monclova.

The Cananea, Yaqui River & Pacific R. R. is to be extended south from Cananea, near the Arizona border, to a connection with the extension of the Guaymas line of the Southern Pacific, which is now being rapidly pushed down the Pacific coast. The Cananea, Yaqui River & Pacific is also a Harriman line, and its extension as now proposed will give the Southern Pacific a new and direct outlet between points in Western Mexico and the United States. The survey for the extension is now in progress. The grading forces on the Guaymas extension are at work considerably beyond the Yaqui River, where a large and costly bridge is being constructed.

The Mexican Central R. R. Co. is back of a project to establish a new and greater city adjacent to the present town of Manzanillo, which is to be made the Pacific coast terminus of that road. The Mexican Government is expending many million dollars in constructing port works at Manzanillo with the view of making it the chief port on the Pacific coast. Although the Mexican Central's extension lacks only about 40 miles of being completed to a connection with the railroad leading from Colima to Manzanillo, which it owns, it will take some time to finish building the line owing to the heavy construction work that is to be done. The present town of Manzanillo is so situated that it cannot broaden out to any great extent. In order to provide for the people who are expected to be attracted to the flourishing port when the railroad is finished, the Mexican Central has purchased a large tract of land two miles from the present town. It has laid this land out for an ideal town site. A complete system of sewers and sanitation works are to be installed. The streets and sidewalks are all to be paved with concrete. Plans have already been drawn for the erection of ten cottages for employees, each cottage to cost $8,000. The Mexican government is taking an active interest in improving the health conditions of the locality. The Laguna Cuyutlan, a semi-stagnant body of water which is situated in the rear of the old town, will be connected with the Pacific Ocean by a canal which will let in the tide water and flush out the disease-breeding still water.

CONTRACT PRICES.

LOCK AND DAM.—Dallas, Tex.—The following bids were received on May 28 by Capt. W. P. Wooten, U. S. Engr., for constructing lock and dam No. 6, Trinity River, Texas: (1) D. C. McCord, Dallas, Tex.; (2) Hubbard Building & Realty Co., Dallas, Tex. It is recommended by the engineer that the contract be given to the Hubbard Building & Realty Co.

BIDS FOR CONSTRUCTING LOCK AND DAM NO. 6, TRINITY RIVER, TEXAS, RECEIVED MAY 28.

	(1)	(2)
5 acres grubbing and clearing	$40.00	$100.00
35,120 cu. yds. excavation	.45	.40
2,000 lin. ft. round timber	.20	.30
41,000 lin. ft. round piles	.30	.50
5 cords brush	10.00	10.00
7,300 cu. yds. concrete	8.40	7.50
7,400 ft. B. M. boule gates	72.00	50.00
60 ft. B. M. oak timber	.12	.05
50,750 ft. B. M. timber in permanent work	80.00	50.00
40,000 ft. B. M. timber in cribs	50.00	50.00
2,400 cu. yds. rip-rap	4.00	5.00
176,720 lbs. iron and steel	.09	.06½
47,000 lbs. steel-reinforcing rods	.06	.07
6,600 lbs. chain	.10	.07½
1,700 lbs. drift bolts	.07	.05
188,600 ft. B. M. sheet piling	50.00	50.00
2,288 sq. ft. sheet piling, steel	2.50	.75
7,300 cu. yds. plain filling	.40	.30
2,550 cu. yds. compacted filling	.60	.40
4,725 sq. ft. rip-rap paving	.20	.40
4,785 sq. ft. paving on spalls	.30	.50
1,537 sq. ft. paving in concrete	.35	.50
410 sq. ft. paving for cribs	.40	.20
1,000 sand bags, each	.25	.10
67 lin. ft. gages	5.00	.50
2,550 lbs. crib, crane and service car	.20	.25
434 frames with rollers, each	5.00	2.00
580 lin. ft. drains under lock floor	1.00	.50
Totals	$154,661.15	$144,113.95

INDUSTRIAL NOTES.

THE RAYMOND CONCRETE PILE CO., of Chicago, announces that it has opened a New York office at 71 Nassau St., Room 1007.

THE C. & C. ELECTRIC CO. has opened offices in the Bank of Commerce Building, Norfolk, Va., and will be represented by Walter Clarke Dean.

THE EUREKA AUTOMATIC ELECTRIC SIGNAL CO. announces the removal of its offices from Lansford, Pa., to Tamaqua, Pa., where its factory is located.

THE BUFFALO FORGE CO. and BUFFALO STEAM PUMP CO. will abandon their office in Columbus, beginning July 1st, locating in Cleveland and Cincinnati. Mr. A. J. Wise taking charge of their interest in the latter territory and Mr. W. A. Rowe having in hand the Cleveland district.

ELECTRICAL INSTALLATION CO., of Chicago, has opened offices at Nos. 406-7 Tractional Terminal Building, Indianapolis, Ind., where the engineering and direct supervision of the construction and equipment of the Indianapolis, New Castle & Toledo Electric Ry. Co.'s system and the Indianapolis, Crawfordsville & Western Traction Co.'s line will be managed.

THE DE LA VERGNE MACHINE CO., of New York, reports the following recent sales of the well-known "Hornsby-Akroyd" crude and fuel oil engines. The Fulton Bag & Cotton Mills, Atlanta, Ga., 50 HP. engine to drive general machinery; F. P. Pfleghar & Son, New Haven, Conn., 125 HP. engine direct connected to generator; Wissahickon Electric Co., Fort Washington, Pa., 50 HP. engine; Iola-Aurora Production Co., Iola, Kans., 20 HP. engine for driving general machinery; Marconi Wireless Telegraph Co., of America, New York City, 7 HP. for furnishing electric current for wireless telegraph station.

JOHN F. ALLEN, 370-372 Gerard Ave., New York, has recently shipped to Manila, P. I., three large Allen riveters of 72" reach, on order of the Atlantic, Gulf & Pacific Co. for pipe work contract which this firm has secured there. The shipment is just one-half the order, the balance of which will go forward in about two weeks. The machines will average five rivets per minute.

THE LIMA LOCOMOTIVE & MACHINE CO. reports the following sales during the week ending June 23: Wm. Johnson & Co., Buenos Ayres, S. A., two 12 × 16 American type; L. Smith & Son, Orange, Miss., one 10-ton Shay; New River Lumber Co., New River, Tenn., one 65-ton Shay; Hope Lumber Co., Hope, Ark., one 15-ton Shay; McMurtrie-Guiler Co., San Juan, P. R., one 8 × 14 Forney type; Benson Logging & Lumbering Co., Oak Point, Wash., two 37-ton Shays; Lbr. & Development Co., of Michoacan, Conuy, Mex., one 65-ton Shay; Caddo River Lumber Co., Prescott, Ark., one 37-ton Shay; Curry Bitner Lumber Co., Mabie, W. Va., one 33-ton Shay; Lehigh Valley Portland Cement Co., Mitchell, Ind., one 15-ton Shay.

THE ELECTRIC CABLE CO., 17 Battery Pl., New York, has just placed orders with the American Railways Co., of Altoona, Pa., and with the Taluca Light & Power Co., of Taluca, Tex., for Voltax compound, to be used in both cases for insulating purposes. Voltax is meeting with extensive sales among the railway, light and power companies of the United States, which use this material not only for insulating and waterproofing purposes, but in connection with underground conduit systems. It is claimed that the underground conduit system, consisting of wooden troughs, into which Voltax insulating compound is poured after the manner of the underground transmission systems which have been in use in Germany for several years, may be installed and maintained at a cost much less than many other transmission systems now in operation. No poles or other expensive equipment is required, and the low cost of the materials and the ease with which such an underground system may be laid is rapidly bringing it into favor not only with the railway and light companies, but with exposition companies and state fairs, where pavements do not interfere with underground work. In order to fill the large orders which the Electric Cable Co. has received during the past three months, its force at Bridgeport, Conn., has been tripled.

ALLIS-CHALMERS CO. has recently received an order from the Meriden Electric Light Co., of Meriden, Conn., for a 500-KW. Allis-Chalmers Turbo-Generator Unit, to be installed at the power house in Meriden late in the fall, for lighting and power purposes. In addition to the turbine and generator proper, the Allis-Chalmers Co. will also furnish a structural steel foundation frame and a surface condenser with 2,000 sq. ft. of cooling surface, including centrifugal circulating pumps, air pumps, etc. The turbo-generator is the standard 500 KW. Allis-Chalmers construction, wound for 60 cycles, 2,800 volts, 2 phase, with a steam pressure of 125 lbs. per sqare inch. The turbine is direct connected to the revolving field of the generator. The turbine and alternator rotors, each carried in two bearings, will rest on a continuous bed plate which is provided with suitable slides to allow for the expansion and contraction of the turoine cylinder, and in order to preserve the alignment of the entire unit. Units similar to this one are now on order for the City of Jacksonville, the Western United Gas & Elec. Co. of Aurora, Ill., and the Muncie Electric Light Co., of Muncie Ind. Both turbine and alternator are the products of the Allis-Chalmers Co. The alternator will be built at the company's electrical works, Cincinnati, Ohio, and the turbine will be built in the West Allis, Milwaukee, works.

TRADE PUBLICATIONS.

SIGNALING APPARATUS. — The Union Switch & Signal Co., Pittsburg, Pa. Bulletin 24. Paper; 6 x 9 ins.; pp. 43; illustrated.

This is a catalogue of railway crossing signals and parts. Diagrams of circuits, description of manner of operation, are given, as well as descriptive tables of accessories.

TUBE MILL.—Allis-Chalmers Co., Milwaukee, Wis. Linen; 6 × 9¼ ins.; pp. 9; illustrated.

This is instruction book No. 5005, containing instructions for setting and operating the Gates tube mill.

GRINDERS.—Gardner Machine Co., Beloit, Wis. Paper; 6 × 9 ins.; pp. 14; illustrated.

Descriptions and dimensions of the Gardner disk grinders, disk wheel press, and lever feed table are given, together with descriptions of work that has been done on these machines.

SHEET METAL.—The Berger Mfg. Co., Canton, Ohio. Paper; 9 × 6 ins.; pp. 16; illustrated.

This circular illustrates steel ceilings, window frames and sash, architectural metal work, imitation Spanish tiles of metal and steel furniture. There is a very small amount of descriptive reading.

BRIQUETTING MACHINE.—The Renfrow Briquette Machine Co., National Bank of Commerce Building, St. Louis, Mo. Paper; 3½ × 6¼ ins.; pp. 12; illustrated.

The machine makes small briquettes of about ¾ to 1 lb. each, and includes mixing apparatus as well as the press. It is in use at the government fuel testing plant at St. Louis.

TRUCKS FOR CONCRETE.—Northwestern Tile Co., Milwaukee, Wis. Paper; 5 × 7 ins.; pp. 4; illustrated.

This pamphlet describes a steel truck or barrow mounted on two wheels at the side, so as to be shorter than a wheelbarrow, and to dump forward easily. It is of 5 cu. ft. capacity, and is intended specially for handling concrete.

PNEUMATIC TOOLS.—Chicago Pneumatic Tool Co., Fisher Building, Chicago. Paper; 9½ × 12 ins.; pp. 4; illustrated.

This circular shows a number of special tools and appliances, including Little Giant drills with Corliss valves, Duntley air-cooled electric drills, riveting hammers, etc.

STORAGE BATTERIES.—The Electric Storage Battery Co., Philadelphia, Pa. Bulletin No. 97; paper; 8 × 10½ ins.; pp. 8; illustrated.

A very brief description of the storage batteries used in connection with the railway and central lighting stations of Chicago, Ill., and Milwaukee, Wis., is given.

CONVEYING MACHINERY.—Allis-Chalmers Co., Milwaukee, Wis. Bulletin No. 1707; paper; 8 × 10½ ins.; pp. 12; illustrated.

Forged, malleable and detachable saw dust chains, automatic saw dust or fuel feeders to boiler furnaces, sprockets, etc., are described. The circular contains table of dimensions of chains and sprockets.

FOUNDRY CHAPLETS AND ANCHORS.—W. W. Lindsay & Co., Harrison Bldg., Philadelphia, Pa. Catalogue No. 2; paper; 3½ × 6½ ins.; pp. 20; illustrated.

The Lindsay chaplets are made from soft steel and are so arranged that they will not loosen in the casting. The booklet contains tables of sizes and price list of those chaplets and anchors carried in stock.

MERCURY VAPOR LAMPS.—The Cooper-Hewitt Electric Co., New York City. Circular No. 12; paper; 7 × 10 ins.; pp. 28; illustrated.

The catalogue enumerates the merits of the Cooper-Hewitt vapor lamp for industrial lighting, describing the complete lamp, its operation, etc.

PNEUMATIC PISTON DRILLS.—Ingersoll-Rand Co., New York City. Bulletin No. 2007. Paper; 6 × 9 ins.; pp. 36; illustrated.

A full description of these drills, which are of the three cylinder reciprocating type, is given, together with lists of repair parts for the different size drills.

COAL MINING MACHINERY.—Sullivan Machinery Co., Railway Exchange, Chicago, Ill. Paper; 5½ × 3¼ ins.; pp. 16; illustrated.

A brief summary of the machinery manufactured by this company is given. The line includes pick, pillar, long wall and shearing machines, air compressors, diamond core drills, ventilating fans and hoisting engines.

PNEUMATIC HAMMERS.—Ingersoll-Rand Co., 11 Broadway, New York City. Bulletin No. 2006. Paper; 6¼ × 9 ins.; pp. 16; illustrated.

The "Imperial" chipping and riveting hammers which operate on air pressures of 80 to 100 lbs. per sq. in., are described. The bulletin contains table of dimension and list of parts with directions for properly caring for these hammers.

CONVEYING AND ELEVATING MACHINERY.—Robins Conveying Belt Co., Park Row Bldg., New York City. Bulletin No. 15; paper; 6 × 9 ins.; pp. 23; illustrated.

The Robins patent belt, idlers, trippers, bearings and bucket elevators are described in this catalogue. About half of the publication is devoted to descriptions and illustrations of plants that have been installed by this company.

INDEXING AND FILING SYSTEM.—Amberg File & Index Co., Chicago. Paper; 7¾ × 9½ ins.; pp. 48; illustrated.

A number of filing cases for cards, documents, etc., are shown, but the pamphlet is largely devoted to a description of different methods of indexing and filing by significant headings in such a way as to give the greatest convenience in looking up information.

STEAM TURBINES. — Allis-Chalmers Co., Milwaukee, Wis. Bulletin 1504; paper; 8 × 10½ ins.; pp. 32; illustrated.

The bulletin devotes a small amount of space to the general discussion of the different types, "impulse" and "reaction," of turbines, which is followed by a full description of the operation and construction of the Allis-Chalmers steam turbine and generator.

ANEMOMETERS, SAFETY LAMPS, ETC.—John Davis & Son, 110 W. Fayette St., Baltimore, Md. Paper; two pamphlets; 5½ × 8½ ins.; pp. 10 and 15; illustrated.

The smaller of these pamphlets is a descriptive catalogue and price list of anemometers, surveying aneroids, pit water gages and other instruments used in mining work. The larger pamphlet relates to different forms of safety lamps for use in mines.

STEAM ENGINES.—Donegan & Swift, 6 Murray St., New York City. Paper; 13¾ × 10¼ ins.; pp. 8; illustrated.

The Swift automatic cut-off, self-oiling engine with closed frame is described. There are vertical and horizontal sections showing the working parts of the engine, together with table of dimensions and line cuts for the various engines, which range in size from 6 × 8 to 24 × 21 ins.

CONCRETE MACHINERY.—Ransome Concrete Machinery Co., New York City. Paper; 5 × 6¾ ins.; pp. 112; illustrated.

This book contains descriptions, dimensions and price lists of the Ransome concrete mixers, buckets, friction hoists, barrows, engines, boilers, etc. In addition there is some information on measuring cement, the proper proportions of ingredients in concrete, cost of mixing concrete, etc.

STEAM SHOVELS.—The Toledo Foundry & Machine Co., Toledo, Ohio. Cloth; 9½ × 6½ ins.; pp. 81; illustrated.

The numerous styles and sizes of steam shovels and dredges manufactured by the company are described and illustrated. The illustrations show the apparatus in operation while line cuts are also given. Many testimonials are printed, together with a partial list of the users of these shovels.

OPEN-HEARTH AND RE-HEATING FURNACES. — The Wellman-Seaver-Morgan Co., Cleveland, Ohio. Paper; 9 × 12 ins.; pp. 15; illustrated.

The book is largely illustrative, containing cuts of plants in which this company has installed open-hearth steel and re-heating furnaces. There is a small amount of descriptive matter, describing the manner of operation of these furnaces.

POWER PLANTS. — Westinghouse-Church-Kerr & Co., New York City. Paper; 6 × 9¼ ins.; pp. 55; illustrated.

"Work Done" is the title of this book, which gives brief descriptions of some of the work done by Westinghouse-Church-Kerr & Co. It is not a technical discussion, and does not deal with details, but simply shows what has been accomplished in the way of modern plants.

SCREW JACKS.—The Duff Manufacturing Co., Pittsburg, Pa. Paper; 6 × 9¼ ins.; pp. 16; illustrated.

The Duff roller bearing ratchet screw jacks are described. In these jacks the load is raised by a steel screw, which is actuated by means of a bevel gear and ratchet. These jacks are made in sizes of 10 to 50-ton capacity. The book contains price lists and general dimensions.

LOCOMOTIVE-COALING CRANES. — The Brown Hoisting Machinery Co., Cleveland, Ohio. Paper; 6 × 9 ins.; pp. 27; illustrated.

The "Brownhoist" locomotive crane, with grab bucket equipment, especially designed and arranged for coaling locomotives, storing coal, etc., is described. The book contains numerous illustrations of the crane in operation, also clearance dimension cuts.

CAR WHEEL LATHES.—Niles-Bement-Pond Co., 111 Broadway, New York City. Paper; 9 × 12 ins.; pp. 13; illustrated.

This is the June number of the "Progress Reporter" and contains an article on the method of handling the Pond steel-tired car-wheel lathe, together with line cuts giving details of tools for these lathes. It is fully illustrated and contains short descriptions of the different styles of machines.

LIGHTING PROTECTIVE APPARATUS.—Westinghouse Electric & Mfg. Co., Pittsburg, Pa. Circular 1132. Paper; 7 × 10 ins.; pp. 24; illustrated.

The circular gives a short discussion on the conditions to be met in protecting electrical lines and apparatus, together with instructions for installing protective apparatus

in order to obtain the best results. The apparatus described includes type C.-A. C. Lightning Arrester, type M. P. Lightning Arrester for A. C. or D. C. Circuits-0-1000 Volts, Westinghouse Low-Equivalent Alternating-Current Lightning Arrester for 18,000 to 25,000 Volts and Choke Coils for Alternating-Current Circuits.

BOILER FEED PUMPS.—American Steam Pump Co., Battle Creek, Mich. Paper; 3¼ × 6 ins.; pp. 14; illustrated.

Tables of dimensions are given for the Marsh standard boiler feed pumps, sizes "B" to "R," with capacity ranging from 10 to 3,500 HP. These pumps are self-governing and cannot run away, race or pound should the suction be broken, and handle either cold or hot water of any temperature equally well.

DRAWING TABLES.—Economy Drawing Table Co., Toledo, Ohio. Paper; 5½ × 8¼ ins.; pp. 24; illustrated.

These tables are arranged with either loose or adjustable drawing boards on top, and chest of drawers underneath, and are made in various styles and sizes to accommodate engineers, draftsmen, designers, architects, etc. The book contains price lists and partial list of users of the "Economy" tables and cases.

DROP FORGINGS.—J. H. Williams & Co., Hamilton Ave. and Richards St., Brooklyn, N. Y. Paper; 5 × 7½ ins.; pp. 113; illustrated.

This is the 1906 catalogue which lists, with size and price, drop forged wrenches, spanners, tool post fittings, crank handles, clamps, dogs, caliper gages, eye bolts, hooks, rope sockets, thumb nuts and screws, shaft collars, flanges, crank shafts, connecting rods, levers, etc.

OIL ENGINES.—De La Vergne Machine Co., New York City. Paper; 9¼ × 6¼ ins.; pp. 82; illustrated.

The Hornsby-Akroyd oil engines are four-cycle engines burning any grade of oil. A description is given of these engines, their operation, etc., together with many illustrations and descriptions of engines that have been installed for various purposes. The book contains tables of dimensions of the different units and many testimonials.

VALVE GEAR.—Baldwin Locomotive Works, Philadelphia, Pa. Bulletin No. 55; paper; 9 × 6 ins.; pp. 28; illustrated.

A description of the Walschaerts valve gear is given, together with general instructions for erecting and setting these valves, and a history of Walschaerts and his valve motion, by Prof. M. J. Bouivin, of the University of Ghent. Dimensions of some of the locomotives fitted with this gear, as built by the Baldwin company, are also listed.

LOCOMOTIVES.—American Locomotive Co., New York, N. Y. Paper; 9 × 6 ins.; pp. 48; illustrated.

This pamphlet is devoted to the 4-6-2 class of locomotive for fast and heavy service. Dimensions and half-tone engravings of a number of engines are given, together with some line drawings, including trailing trucks with inside and outside bearings. The heaviest engine is one for the Baltimore & Ohio Ry., 229,500 lbs., with 150,500 lbs. on the driving wheel.

SAND BLASTS.—C. Drucklieb, 132 Reade St., New York. Paper; 3½ × 6 ins.; pp. 12.

"Sandcraft" is the title of this little pamphlet, which is a collection of notes on the connection and operation of the injector sand blast. The pressure used is 80 to 110 lbs. Four sizes of blast, with a capacity of 300 to 2,000 lbs. of sand, are listed. A table of the number of cubic feet of free air per minute required for various sizes of nozzles is also given.

POLYPHASE INDUCTION MOTORS.—Stanley-G. I. Electric Mfg. Co., Pittsfield, Mass. Bulletin No. 148. Paper; 8 × 10½ ins.; pp. 20; illustrated.

This bulletin supersedes Bulletins 141 and 146. These motors are made for 60 and 25-cycle circuits, operating at 220, 440, 550 and 110 volts, the sizes running from 1 to 200 HP. Two types are listed, namely, "Squirrel Cage" and "Series Resistance," the latter being subdivided into automatic and external control. The bulletin contains complete tables of rating, together with dimensions and weights.

ELECTRICAL APPARATUS.—Stanley-G. I. Electric Mfg. Co., Pittsfield, Mass. Two bulletins. Paper; 6 × 9 ins.; illustrated.

Bulletin No. 612 supersedes No. 254 and describes the G. I. push button switch. The bulletin contains price list and dimension sheet.

Bulletin No. 613 is devoted to type "K" arc lamps. The lamp is made for direct or alternating current, and voltages from 100 to 125 volts, with a current consumption of 3 to 6 amperes. The prices of the different styles of lamps and globes are noted.

ENGINES.—American Blower Co., Detroit, Mich. Two bulletins; paper; 7 × 8¾ ins.; illustrated.

Bulletin No. 193 illustrates "A B C" enclosed, high-speed, self-oiling, duplex engines, showing manner of construction and operation.

Bulletin No. 194 supplements catalogues Nos. 171 and 193, and describes engines for small direct-connected generator sets. These are also vertical, enclosed, self-oiling, automatic, high-speed engines, and the catalogue contains tables of dimensions and capacities.

Flyer No. 196 lists the "A B C" engines.

BLUE PRINT MACHINES.—Williams, Brown & Earle, 918 Chestnut St., Philadelphia, Pa. Paper; 6 × 9 ins.; pp. 8; illustrated.

The Franklin automatic, continuous feed, electric blue printing machine will handle perfectly a tracing one inch square or larger, while a roll of blue print paper can be run through the machine without stop, the separate sheets of tracing being laid upon it as it passes into the machine.

The washing and drying machine washes the print in running water, carries the print automatically over the gas or steam dryer and stores it on a rack ready for use. The circular contains price-list of these machines together with trimmers, wringers, etc.

MELTING AND BRAZING FURNACES.—Rockwell Engineering Co., 26 Cortlandt St., New York City. Three circulars; paper; 6¼ × 9¼ ins.; illustrated.

The double chamber metal melting furnace is described by one circular. These chambers are arranged to be used alternately, the exhaust heat from the active chamber flowing into the other chamber thus heating its metal near to the melting point with one burner.

Brazing furnaces for brazing tubes and wire, and brazing forges and tables are described in another circular. Floor space, height, weight and fuel consumption are noted.

Rockwell oil burners are listed in the third bulletin and require either steam or compound air for operation.

ELEVATING, CONVEYING AND POWER TRANSMITTING MACHINERY.—Webster Mfg. Co., Chicago. Catalogue No. 30. Cloth; 6½ × 9½ ins.; pp. 574; illustrated.

This is a general catalogue and lists all kinds of conveying elevators, machinery and parts, such as conveyor systems, trippers, hoppers, shaft hangers, screw conveyors, steel elevator buckets and legs, steel spouts, power grain shovels, detachable link belting, water, sack, keg and barrel elevators, sheaves, rope transmission supplies, friction clutches, shafting, shaft couplings, iron and split wood pulleys, belt tighteners, spur, bevel and miter gearing, gas and gasoline engines, revolving coal screens, coal crushers, scales, etc., etc.

ELECTRICAL APPARATUS.—Fort Wayne Electric Works, Fort Wayne, Ind. Three circulars. Paper; illustrated.

Bulletin No. 1079 supersedes No. 1050, and describes type M P L direct-connected, direct-current generators. Voltages and sizes of machines are not given.

"Summer Comforts" is the title of booklet No. 5010, which describes the different styles of "Wood" fan motors. These fans are made in two sizes, 8 and 10 ins., for 105 to 125-volt direct-current circuits, and 100 to 115-volt alternating current, 60 or 125 to 140 cycle circuits. List prices of these motors are given.

Flyer 4503 contains a short description and price list of these fan motors.

FANS.—American Blower Co., Detroit, Mich. Three bulletins; paper; 7 × 8¾ ins.; illustrated.

Catalogue No. 200 describes disk ventilating fans and contains tables of dimensions and numerous other tables that aid in determining the correct size of apparatus.

Catalogue No. 189 is devoted to steel plate fans for heating, ventilating and drying plants. This book also contains tables of dimensions of these fans, together with tables of useful information.

Catalogue No. 190 describes "A B C" blowers for cupolas, forges, pneumatic tube systems, etc. Tables of capacities and dimensions are provided, as well as miscellaneous tables.

Two flyers list "A B C" belted and electric disk fans, and a third describes "A B C" buffing hoods, while a fourth is devoted to testimonials of "A B C" dryers.

PNEUMATIC TOOLS.—Ingersoll-Rand Co., New York City. Two bulletins. Paper; 6 × 9 ins.; illustrated.

Catalogue D-43 describes the "Little Giant" and "Slugger" drill. Tables of dimensions of these drills, together with list of mountings, tools and accessories are given. The price of each drill or part is noted, as well as instructions for operating the drills.

Catalogue X-136 describes "Imperial" type 11 air compressors. These compressors are made in sizes of 5 to 66 HP., for air pressures of 15 to 100 lbs., and either belt, gear or chain driven. Type 11 junior compressor gives 60 to 100 lbs. pressure at 1¼ to 1¾ HP. Tables of dimensions are given for all these compressors.

Circular 6-A lists pneumatic hammers, piston drills and hoists.

ELECTRICAL APPARATUS.—General Electric Co., Schenectady, N. Y. Eight bulletins; paper; three 8 × 10½ ins., five 5¼ × 7¾ ins.; illustrated.

Bulletin No. 4438 is devoted to alternating current two and three-phase induction motors individual panels for motors of from 25 to 450 HP. capacity, 25 to 60 cycles, at 2,080 volts. Tables of dimensions are given.

Bulletin No. 4439 describes G E A-605-A railway motor. These motors are designed to operate on both high-tension alternating current and low-tension direct current. The circular contains a data sheet for ordering motors, together with characteristic curves of efficiency, speed, tractive effort, power factor and dimension sheet.

Bulletin No. 4440 gives a short description of the 25-KW. Curtis steam turbine-generator. These machines are made for steam pressures of 80 to 150 lbs. and voltages of 125 to 250 volts.

Flyer No. 2186 gives the nomenclature of cast grid rheostats and catalogue number of supply parts.

Flyer No. 2187 describes primary cutout for pole line work at 2,500 volts and capacities of 10 to 100 amperes. Prices of cutout and fuses are listed.

Type MD manhole fuse boxes are described in flyer No. 2188. These boxes are made for various sized cables, number of circuits and voltages up to 500 volts. The pamphlet contains price list and directions for ordering.

Flyer 7599 is a supply catalogue for luminous, direct, constant current, series, enclosed arc lamp with swinging upper electrode. Catalogue number with description of each part of lamp and price is given.

Electric radiators are described in Flyer No. 9140. Two types are listed, luminous and non-luminous. The watts consumed by the different sizes are noted and illustrations of heaters in use in offices, residences, etc., given.

Errata sheets for bulletins Nos. 4435 and 3197 are also published.

For other Proposal Advertisements see pages 51, 52, 53, 54, of Advertisements and Construction News page 250.

ROAD IMPROVEMENTS.

Mt. Kisco, N. Y.

Sealed proposals will be received by the Town Board of the Town of Bedford, Westchester Co., N. Y., at the Office of the Town Clerk, in the Village of Mt. Kisco, until 3.30 o'clock p. m., on the 10th day of July, 1906, when they will be opened.

For macadamizing, grading and otherwise improving the road or highway leading from Bedford Station to Bedford Village. The work to extend from the tracks of the N. Y. & Harlem R. R. to the State Road near the residence of R. P. Lounsbury, a distance of about four and two-tenths (4.2) miles. Also the road or highway leading from Bedford Village past the Cliff School House. The work to extend from the State Road near the old Court House, to the forks of road near the Cliff School, a distance of about one mile.

Plans may be seen, blank forms of proposals, specifications and other necessary papers can be obtained on application at the office of Joseph E. Merriam, the Town Clerk, or at the office of Byrne & Darling, Engineers-in-Charge, White Plains, N. Y., on and after Monday, June 25th.

The Town Board reserves the right to reject any and all bids or to accept any bid or bids, which in their judgment may be most favorable to the Town of Bedford.

JOSEPH E. MERRIAM,
25-2t Town Clerk.
Dated Mt. Kisco, N. Y., June 15th, 1906.
By order of the Town Board.

OFFICE OF CONSTRUCTING OFFICER, U. S. Soldiers' Home, Washington, D. C., June 26, 1906.—Sealed proposals will be received here until noon, July 14, 1906, for impervious light face bricks and white enameled bricks for new Mess Hall and Dormitory Building at Soldiers' Home, D. C. Information on application. JOHN STEPHEN SEWELL, Captain, Engrs., Const'g Officer. 26-3t

WATER-WORKS AND SEWERS.

Sealed proposals will be [illegible] City Clerk at his office, until [illegible] July 12th, 1906, and then [illegible] for furnishing material and [illegible] system of Water-Works and [illegible] town of Shelby, Miss.

The approximate quantity [illegible] follows:

One 50,000-gal. steel tank [illegible]
100 tons of 4", 6" and 8" [illegible] pipe.
Hydrants, valves and special [illegible]
One 40-HP. tubular boiler [illegible] all fixtures.
Two steam pumps, one gas [illegible] engine.
10,000 ft. of 10-in. sewer pi[illegible] specials.
5,000 ft. of 6-in. sewer pi[illegible] specials.
20 manholes of brick or co[illegible] tanks.

Separate bids will be receiv[illegible] furnishing the material and the [illegible] each system. Plans and spe[illegible] be obtained from City Clerk [illegible] Ferree, Engineers.

The Water and Sewer Board [illegible] right to accept or reject any [illegible] bids.

T. J. MA[illegible]RS.
[illegible] Clerk

AYRES & FERREE.
Consulting Engin[illegible]
26-2t 127 Madison St., M[illegible]phis, Tenn.

SEWER.

[illegible] City, Pa.

Bids will be received at the [illegible] of the City Controller of Oil City, Pa., up to 4 p. m., July 9, 1906, for constructing a sanitary sewer in the eighth ward of said city, requiring approximately the following:

18" pipe ..... [illegible] feet.
15" pipe ..... [illegible] feet.
12" pipe ..... [illegible] feet.
10" pipe ..... [illegible] feet.
8" pipe ..... [illegible] feet.
6" pipe ..... 12,440 feet.

Plans and specifications can be obtained on application to E. S. LAWRENCE, City Engineer, Oil City, Pa. 26-2t

U. S. ENGINEER OFFICE, 415 Custom House, Cincinnati, O., June 27, 1906.—Sealed proposals for furnishing material and labor for repair of Dam No. 9, Muskingum River, Ohio, with concrete, will be received here until 1 p. m., standard time, July 27, 1906, and then publicly opened. Information on application here, or to EDMUND MORSELL, U. S. Engineer Office, Zanesville, Ohio. 1 6. WARREN, Major Engrs. 26-3t

GRADING AND MACADAMIZING.

A large amount of grading and macadamizing to let; free use of houses, wheel scrapers and hand cars, on farm in city limits; work now ready; payment every two weeks; small surety bond required. FICKLEN & STOBAUGH, 516 Mechanics Bank Bldg., Brooklyn, N. Y. 26-2t

FOREIGN REPORTS
On Proposed Work Wanted

THE AMERICAN MANUFACTURER is able to supply his products, machinery, etc., to any section of the world at as reasonable prices, terms, time, etc., as do [illegible] in foreign countries. But at present reports regarding opportunities do not come in great enough volume to satisfy progressive manufacturers. When planning new work, or when in the market for supplies, equipment, machinery, etc., we request that you send us a news item for publication in our Construction News columns, which are followed closely each week by leading manufacturing and engineering firms of this country.

Send us complete details—stating cost of work, quantity and kind of machinery wanted, date of awarding contracts, etc., and THEREBY GIVE AMERICANS AN OPPORTUNITY TO SUBMIT BIDS.

American engineers and contractors are always prepared to visit any portion of the world when the business warrants it. WHY NOT HAVE AN AMERICAN ASSISTANT?

A few reliable and well-informed correspondents are desired in countries where American machinery is likely to be purchased.

Send complete details to Construction News Editor,

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220 BROADWAY, NEW YORK

Modern Tunnel Practice

Illustrated by Examples Taken from Actual Recent Work

By DAVID McNEELY STAUFFER

M. Am. Soc. C. E.; M. Inst. C. E.
Vice-President Engineering News Publishing Co.

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By CONSTANTINE SMOLEY, C. E.

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2. The bevel or slope can be read directly from the angle expressed in degrees, minutes, etc., or *vice-versa*.
3. The bevel can be obtained from the hypothenuse and one of the sides of the triangle without first figuring the other side by means of the table of squares.

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The season of the year or the difficulties of construction make no difference, so do not hesitate to advertise for bids on this account. The concerns have the plant and the experts to turn out the work without delay.

If machinery, supplies or equipment of any kind are required, do not fail to use our "Proposal" pages, as we go to all of the largest engineering manufacturing firms in the country.

"Replying to your favor relative to advertising for bids on work, I beg to say that I have no work on hand at the present time requiring such advertising, but when the proper time comes will be glad to avail myself of your facilities, which I know from past experience, enables one to reach practically every contractor and engineer in the country." J. R. C., C. E., N. Y., June 1, 1905.

"Your paper reaches enough of the Western contractors who are in a position to personally inspect the proper drainage work before submitting bids."
W. J., Engineer in Charge, Montpelier, Idaho., May 27, 1905.

"We have advertised with the best results for bids for railway work. We have made, and intend to make, fullest use of your very excellent publication."
T. H. M., Ch. Engineer, S. R. R. Con. Co., Syracuse, May 25, 1905.

"We have had a good many inquiries to bid on the drainage work which came through the subscribers of your paper, and feel well paid, and consider the money well spent." F. S. H., Geneseo, Ill., May 23, 1905.

"I consider your newspaper the best advertising medium for engineering work in the United States, and I don't think there can be two opinions on this matter."
W. C., C. E., Toronto, March 6, 1905.

"As to advertisements for bids for railway work, would say that we have usually had hearty response to such notices in ENGINEERING NEWS."
C. P. H., T. Ry. Co., W. Va., March 6, 1905.

During the past season ENGINEERING NEWS has carried advertisements whose work approximated about $35,000,000 a week. The work advertised ranged in cost from a few thousand to millions of dollars. Advertisements for work were received from practically every State in the country, as well as from P. I., Cuba, P. R., South America, Australia, Europe, etc., and included both public and private work. The rate is $2.40 an inch a time for "Proposal Notices." Try to give your proposal work the fullest possible publicity, and we would suggest that at least three insertions be ordered.

Mail copy so we receive it by Wednesday, A. M. as we go to press every Wednesday.

ENGINEERING NEWS, 220 Broadway, N.Y.

For other pictures of ancient mechanics see other side.

PUMPING STATION AND INTAKE.

Columbus, Ohio.

Sealed proposals for furnishing the labor and material for the construction of a waterworks pumping station and intake for the City of Columbus, Ohio, will be received by the Board of Public Service until 12 o'clock noon (standard time) of July 18, 1906, in accordance with the plans and specifications on file in the office of said Board and in the custody of Henry Maetzel, Chief Engineer, Department of Public Service.

Each proposal must be accompanied by a certified check on a solvent bank, or a proposal bond, for an amount equal to at least 10 per cent. of the bid. A bond for 50 per cent. of the amount of the contract will be required of the successful bidder.

Copies of the specifications can be had upon application after June 21, 1906, for the sum of $2.00 each.

Copies of the plans on sheets 30 inches by 40 inches, 66 in number, will be loaned only to prospective contractors applying in person, and upon deposit of a certified check for $100.00, drawn payable to the order of Henry Maetzel, Chief Engineer, Board of Public Service, for each set of plans, and the signing of a receipt for the same, agreeing to return said plans to the City on or before July 21, 1906. The deposits for plans will be returned when plans have been surrendered as above noted.

A copy of the plans and specifications can be seen after June 21, 1906, at the office of Hering & Fuller, 170 Broadway, New York.

By order of the Board of Public Service.

E. F. McGUIRE,
Secretary.

25-3t

ACUTE BUILDING.

Binghamton, N. Y.

Sealed proposals, suitably endorsed on envelope, for construction of an acute building, including heating, plumbing, electric light wiring and fixtures, generating set, switchboard, pole line and feeders, at the Binghamton State Hospital, Binghamton, N. Y., will be received up to 3 o'clock P. M. on Tuesday the 3d day of July, 1906, by the State Commission in Lunacy, the Capitol, Albany, N. Y., when bids will be opened and read publicly.

Drawings and specifications may be consulted and blank forms of proposals obtained at the Binghamton State Hospital, Binghamton, N. Y., or by application to G. L. Heins, State Architect, Capitol, Albany, N. Y.

Contracts will be awarded to the lowest responsible and reliable bidders unless the bids exceed the amount of funds available therefor, in which case the right to reject all bids is reserved.

N. B.—Only bids for the complete work of construction, heating, plumbing and electric work combined will be considered.

Dated Albany, N. Y., June 21, 1906.

T. E. McGARR, Secretary,
State Commission in Lunacy.

26-1t

SEWERS.

Woonsocket, R. I.

Sealed proposals will be received by the Board of Sewer Commissioners, Woonsocket, R. I., at their office in the City Hall Building, until 2 o'clock p. m., Thursday, July 5, 1906, for building sewers and appurtenances as follows:

(a) In South Main Street, Island Place, through right-of-way from Island Place to Armory Street, and through Armory Street to Allen Street, about 750 feet of 8-inch and 500 feet of 24-inch pipe sewer.

(b) In Social Street about 1,300 feet, in Greene Street about 600 feet, in Cass Avenue about 250 feet, in Wood Avenue about 800 feet, and in Front Street about 1,450 feet, all 8-inch pipe sewer.

Each item as above must be bid for separately, and each bid must be accompanied by a certified check for the sum of five hundred ($500) dollars, made payable to the order of Samuel P. Cook, City Treasurer, as surety that if the bid is accepted a contract will be entered into.

Plans and specifications may be seen and blank form of contract and proposal obtained at the office of the City Engineer, City Hall Building, Main Street, Woonsocket, R. I.

The right is reserved to reject any and all bids.

FRANK E. HOLDEN,
GEORGE S. READ,
GEORGE H. VALOIS,
Board of Sewer Commissioners.

FRANK H. MILLS, City Engineer.

Woonsocket, R. I., June 18, 1906. 25-2t

MACADAM ROAD.

Blackwood Turnpike, Camden County, N. J.

Sealed proposals are invited for macadamizing the Blackwood Turnpike Road, from Heading to Chews Landing, Lemden Ave. and Kings Highway, in Camden County, a distance of two and one-half miles, more or less.

Bids will be received, immediately opened and publicly read at the Board of Chosen Freeholders' Room, in the Court House, Camden, N. J., on Wednesday, July 11th, 1906, at 11 A. M.

Plans and specifications can be seen at the office of Fred. W. George, Clerk of Board of Chosen Freeholders, Court House, Camden, N. J.; State Commissioner of Roads, Trenton, N. J., and in the office of Engineering News, New York City, N. Y.

Each bid must be accompanied by a certified check in amount of One Thousand Dollars as a guarantee of good faith.

The board reserves the right to reject any or all bids.

ALFRED L. SAYERS,
Director.

J. J. ALBERTSON, County Engineer.

Dated Camden, N. J., June 11, 1906. 25-3t

STORAGE RESERVOIR.

Altoona, Pa.

Sealed proposals will be received by the Board of Water Commissioners of the City of Altoona, Pa., until 12 o'clock noon, on the Second Day of August, 1906, for the construction of a storage reservoir on Burgoons Run, with all its accessories, as shown on the plans or called for in the specifications.

Plans can be seen and specifications obtained at the office of the Board.

The Board hereby reserves the right to reject any or all bids, or accept any that in their judgment will be for the best interests of the city.

A bond satisfactory to the Board in amount and sureties will be required of those to whom the contract may be awarded.

Cash or a certified check, made payable to the order of the Board of Water Commissioners, of Altoona, Pa., to the amount of $1,000.00 must be deposited by each bidder and accompany his bid as a guarantee that in case the contract is awarded to him, he will, within seven days thereafter, execute said contract.

Bids must be sealed and addressed to the Board of Water Commissioners, Altoona, Pa., and marked on the outside of the envelope enclosing them, "Proposals for Storage Reservoir."

Signatures of Board Members:

F. C. GERHARDT, Chairman,
H. K. McCAULEY,
S. M. GRIFFITH,
C. B. CAMPBELL, Secretary.

25-4t

BRIDGE REPAIRS.

Westfield, Mass.

Sealed bids for furnishing materials and placing new stringers, flooring, etc., on Great River Bridge will be received by the Board of Selectmen of the Town of Westfield, Massachusetts, at the office of the Town Clerk, until 12 o'clock m., Tuesday, July 10, 1906, and at that time will be publicly opened and read.

Each bid must be accompanied by a certified check for five hundred ($500.00) dollars.

Bridge is 380 ft. long and has a 24-ft. roadway.

Work includes new steel track stringers, new hange plates on floor-beams, hard-pine roadway stringers, new deck planking and sheathing.

Plans can be seen and specifications and blank forms of proposals obtained at the office of the Town Engineer, Town Hall, Westfield, Mass., on and after June 29, 1906.

The Selectmen reserve the right to reject any and all bids should they deem it advisable so to do, and reserve the right to award the contract as they deem best.

FRED. P. COUSE,
CHESTER H. ABBE,
JOSEPH C. PARSONS,
Board of Selectmen.

OREN E. PARKS,
Town Engineer. 26-1t

FORT MONROE, VA., June 26, 1906.—Sealed proposals, in triplicate, for constructing concrete walks, brick gutters and resurfacing macadam roads, Ft. Monroe, Va., will be received at the Office of the Constructing Quartermaster, until noon, July 27, 1906. The United States reserves the right to accept or reject any or all proposals or any part thereof. Information furnished on application. Bids should be plainly marked as such on the envelope or outside wrapper. Address CAPTAIN R. H. C. KELTON, Qr. Mr. 26-4t

MACADAM ROAD.

Second Section of the Freehold and Colt's Neck Road, Monmouth, N. J.

Sealed proposals to build the Second Section of the Freehold and Colt's Neck macadam road, 2 18-100 miles long, as designated upon the plans and specifications, will be received by the Board of Chosen Freeholders of the County of Monmouth, N. J., at the Court House in Freehold, on Wednesday, July 11th, 1906, at 12 o'clock noon of said day, and then and there publicly opened. Specifications and all information regarding said construction may be obtained by applying to Peter Forman, Engineer, at his office at Manalapan, N. J.—Post-office, Englishtown, N. J.—or at the County Collector's office at the Court House in Freehold; or of Frank E. Hyer, Chairman of the Road Committee, at Colt's Neck, New Jersey. Each bidder must accompany his bid with a certified check for one thousand dollars, payable to the Director of the Board of Chosen Freeholders, as a guarantee; if said work is awarded to him, he will enter into a contract with said Board, for the due and proper performance of the same; which contract must be executed, together with the bond of the successful bidder, within the term of thirty days from the time of awarding the contract; in the penal sum of at least the total estimated cost of the work, with two or more sureties, freeholders, or a good and sufficient surety or trust company, all to be first approved by the Director of the Board, and conditioned, for his faithful performance of the work in strict conformity with the plans and specifications. The Board of Freeholders reserves the right to reject any or all bids.

JOHN GUIRE,
Director.

Dated June 18, 1906. 25-3t

DREDGING, CONCRETE ABUTMENTS, AQUEDUCTS, LOCKS, ETC.

Columbus, Ohio.

Sealed proposals will be received at the Office of this Board until 12 o'clock, noon, on the 10th day of July, 1906, and then opened, for the dredging of the Miami and Erie Canal from the Middletown lock to the upper lock at Lockland, a distance of about 29 miles, estimated at 350,000 cubic yards; the construction of concrete additions to the abutments of the Lesourdsville and Sunfish aqueducts; rebuilding an aqueduct located 6 miles north of St. Marys; two spans of about 80 feet each, at the Miami aqueduct, near Tadmor; rebuilding 12 locks between Middletown and Lockland, two locks in Defiance and one lock located about 5 miles north of St. Marys; for about 100,000 feet B. M. hardwood lumber for lock gates and sheeting delivered at railway stations between Middletown and Lockland, and the construction of a culvert in the village of Spencerville, all on the Miami and Erie Canal.

Particulars may be obtained from the Chief Engineer of Public Works, Columbus, Ohio, or from the Canal Engineer, Middletown, Ohio, after July 2, 1906.

CHAS. E. PERKINS,
Chief Engineer, Public Works of Ohio.

25-3t

Situations Wanted

Civil Engineers.

CHIEF ENGINEER, familiar with every detail at railroad work; salary $6,000 to $10,000 yearly, now employed. Address "D. A. 14," Engineering News, New York. 35-95

Superintendents, Misc., etc.

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TRACTION SHOVELS
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Ten-tons Steam Road Roller

State make and price. Also ... same can be seen. Address by mail only

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State weight, make, condition and price tf

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1—9½ × 12 Ball Automatic Center Crank.
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1—Hor. Tubular, 54 in. × 14 ft.
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3683

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Will Furnish and Erect in United States and Foreign Countries

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EXCELSIOR WOODEN PIPE COMPANY

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Advertisement is on page 17

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is a special paint for metal structures which is made by us after years of experimenting. The use to which it has been put by many engineers and architects, and an exhaustive and interesting discussion of the protection of steel structures, is found in a book which we will be pleased to send upon request.

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Classified Index of Advertisers, 27 to 30.

Alphabetical Index of Advertisers page 39.

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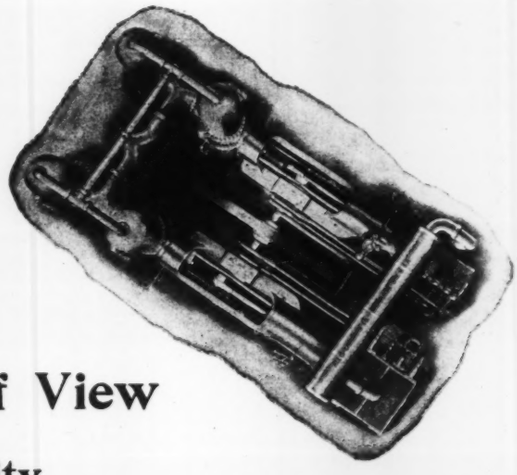

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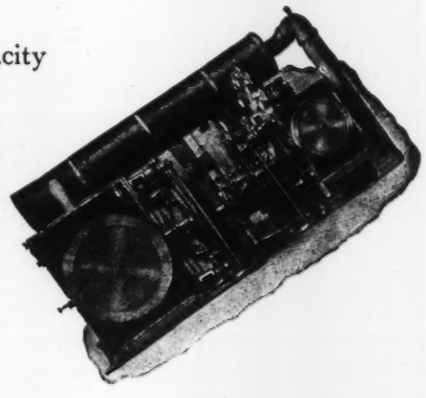

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JOHANNESBURG, South Africa.....The Corner House

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LIMA, Peru.....Henry Guyer
MANILA, P. I.....Bryan-Landon Co.
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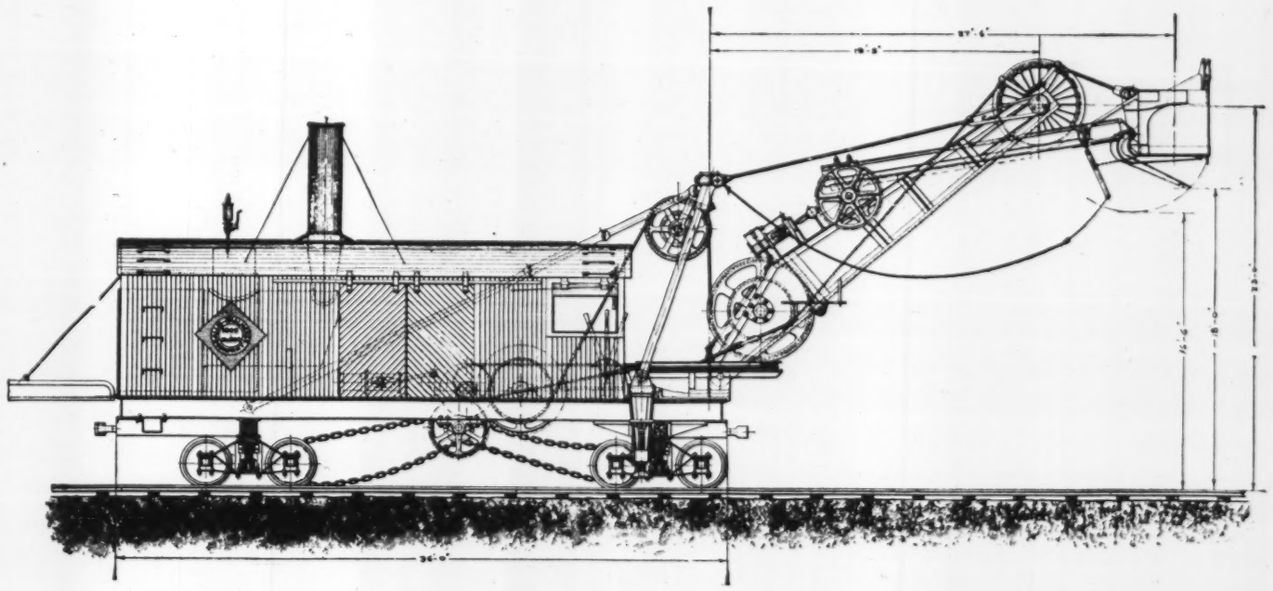
ALLIS-CHALMERS CO
MILWAUKEE WIS U S A

Steam Shovels



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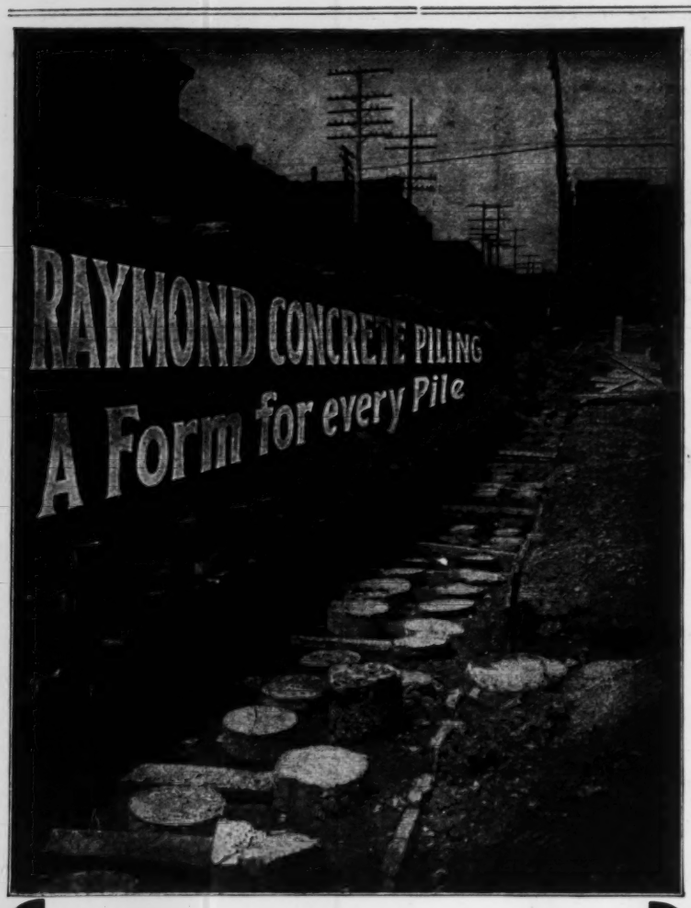

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E. G. Nave Bros. Co., Portsmouth, Ohio.
C. H. Glandorf, Temple Court, Cincinnati, Ohio.
Geo. W. Oakes & Co., Endicott Bldg., St. Paul, Minn.
Markmann, Tyrrell Eng. Co., 620 Chestnut St., St. Louis, Mo.
The Oliver Co., Knoxville, Tenn.
Thomas J. Hind, 19 Milk St., Boston, Mass.

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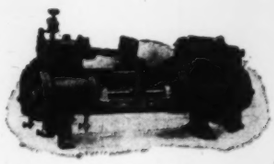

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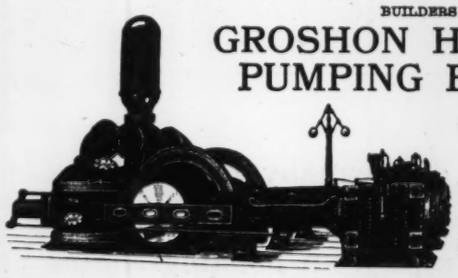

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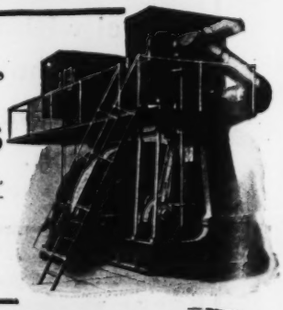

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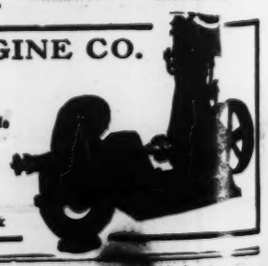

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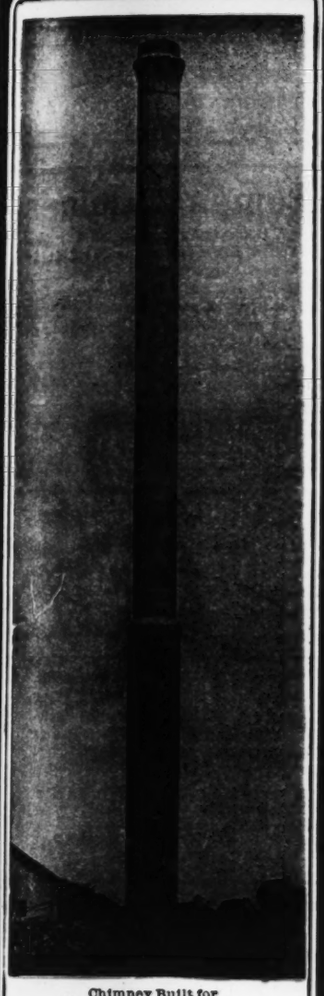

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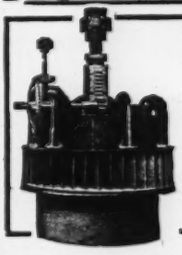

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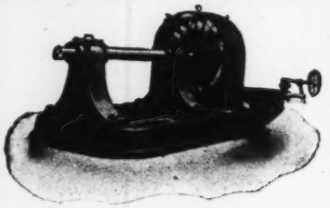

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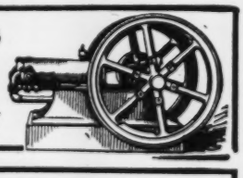

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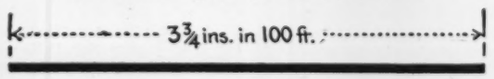

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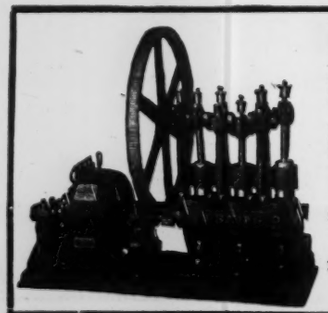

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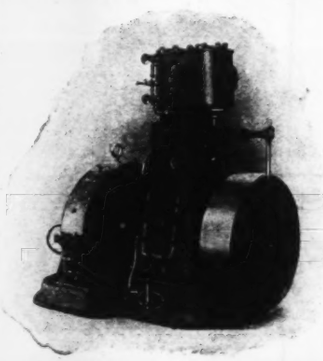

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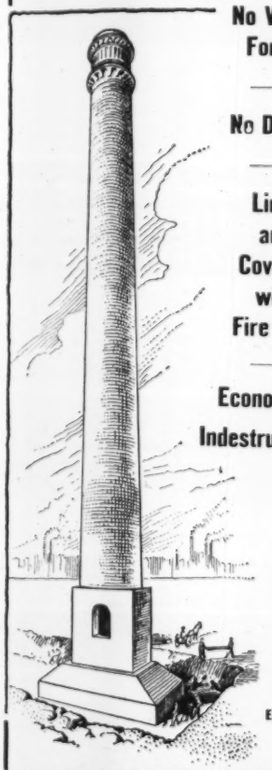

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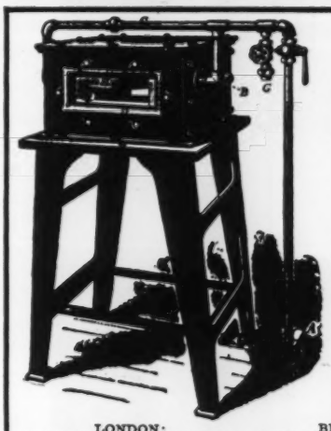

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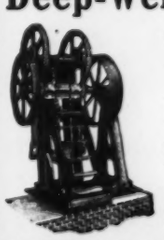

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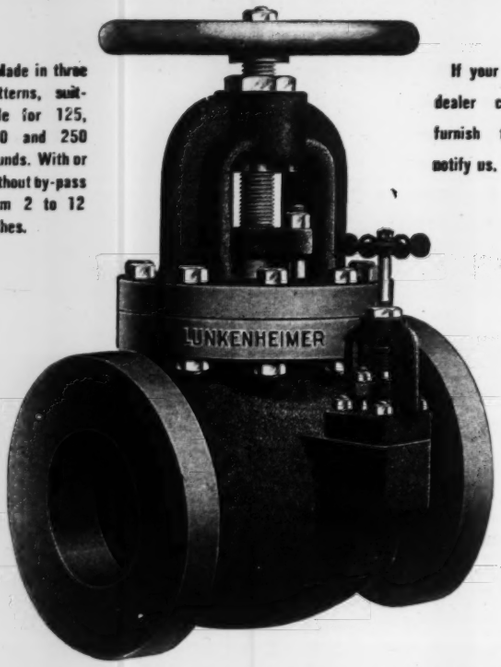

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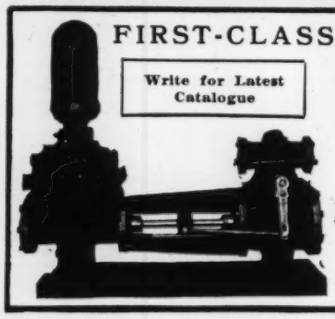

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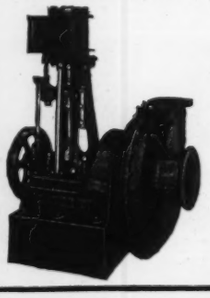

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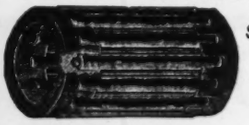

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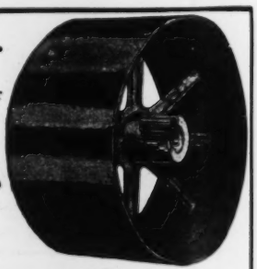

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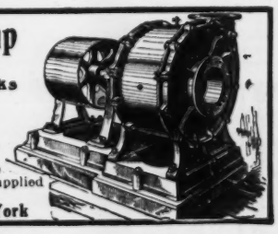

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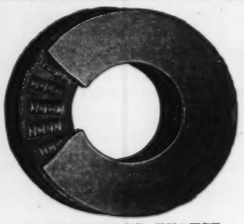

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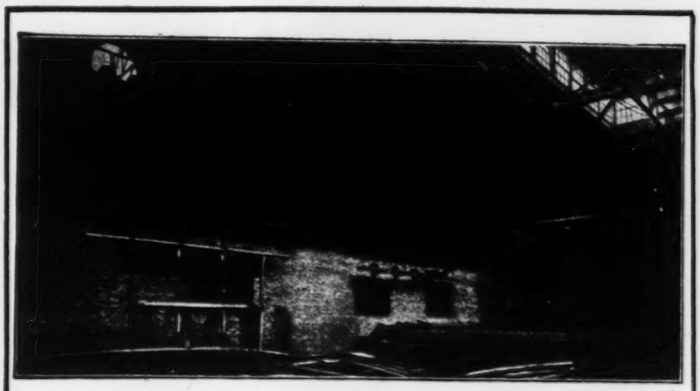

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Remembering that 1% of coal is saved for every 10° F, that the temperature of the feed-water is raised, read the following statements:—

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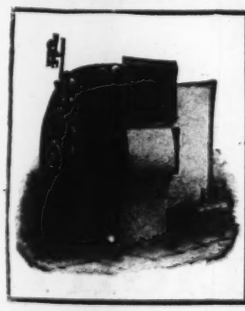

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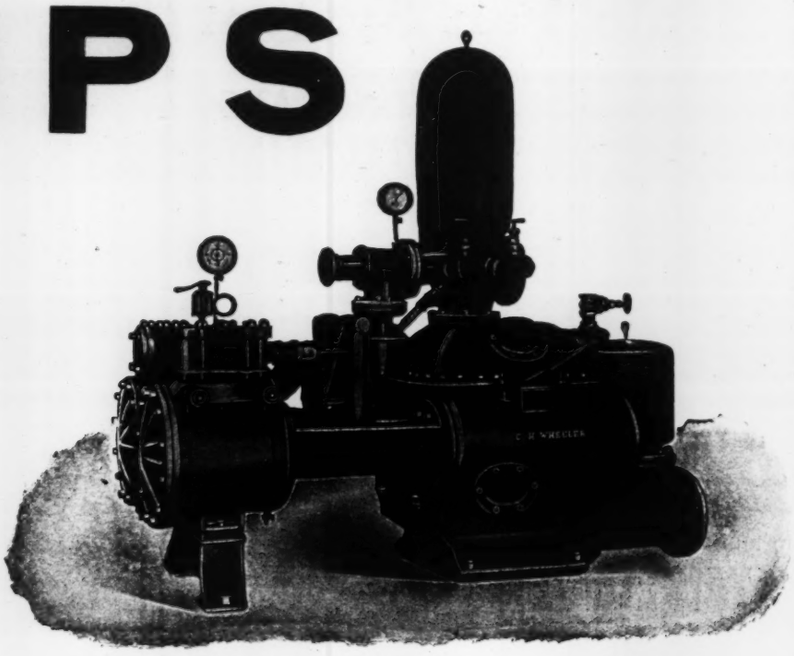

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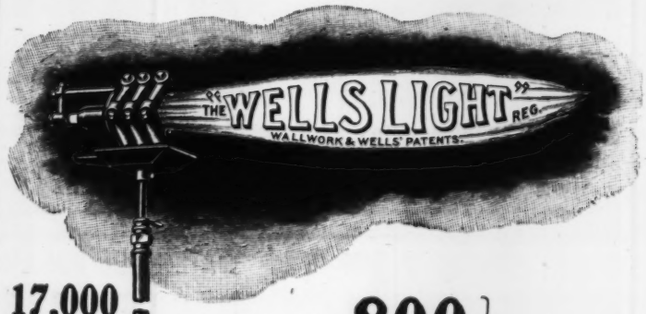

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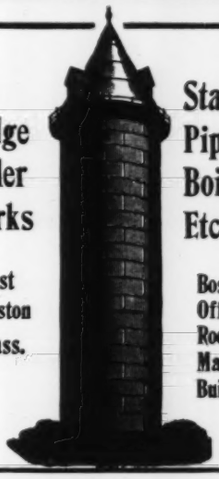

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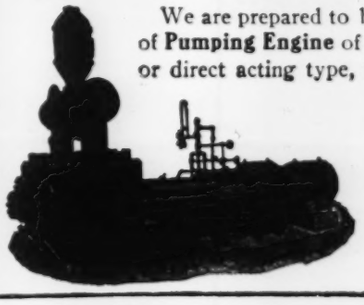

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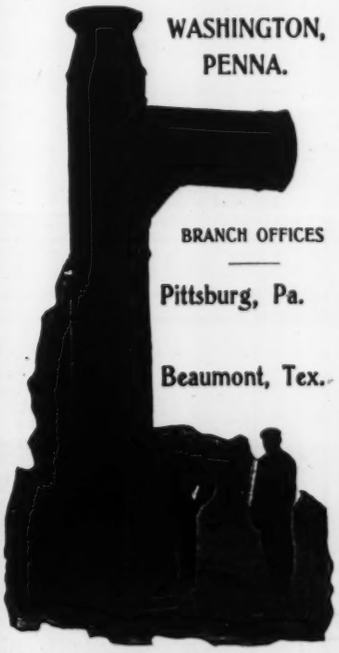

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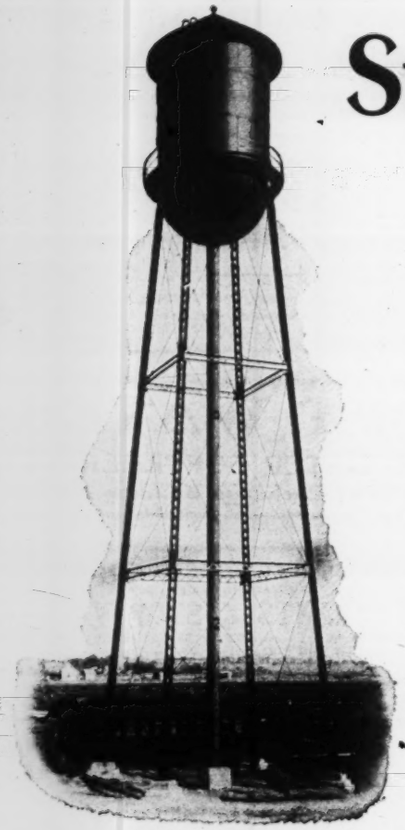

Steel Water Towers

In the early days of steel tanks the most common form was the tall stand pipe of small diameter. Unfortunately, these were so simple to build that many persons having little knowledge of the principles of their design engaged in their manufacture and erection. A popular specification seems to have been—"vertical joints double riveted and horizontal joints single riveted," without regard to the height and diameter or the thickness of metal used. This was undoubtedly a relic of the boiler shop, and originated from the fact that the required riveting for all horizontal seams of any boiler is the same as the pressure is uniform.

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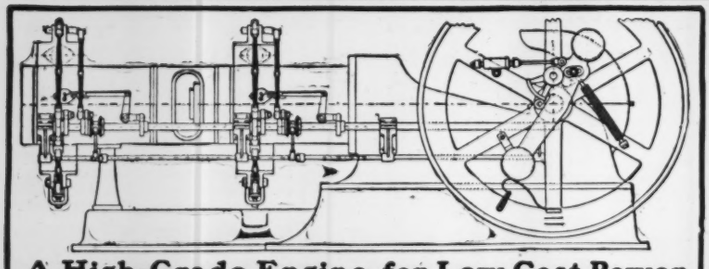

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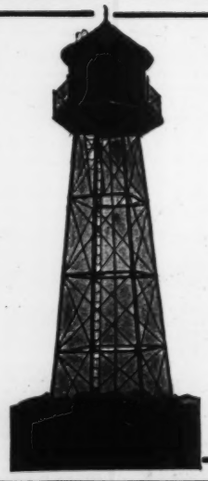

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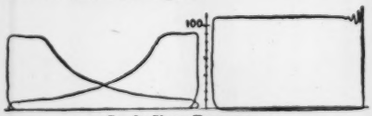

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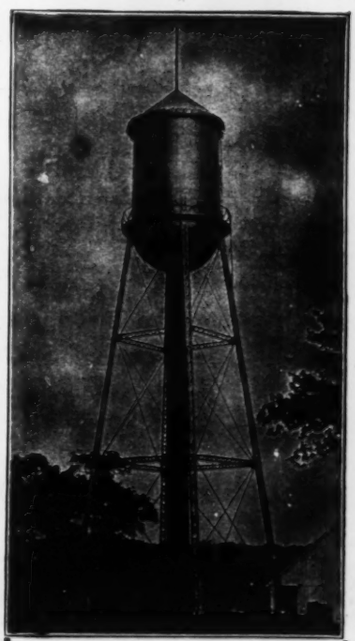

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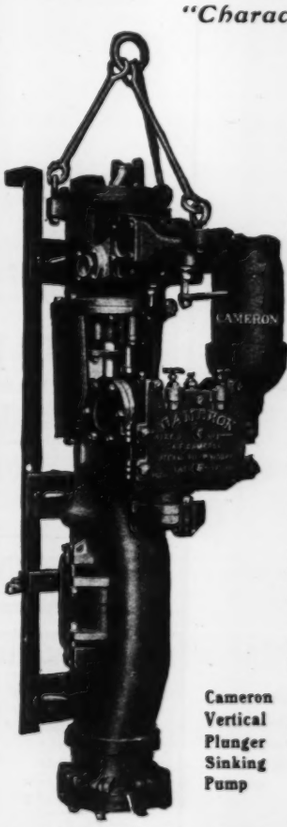

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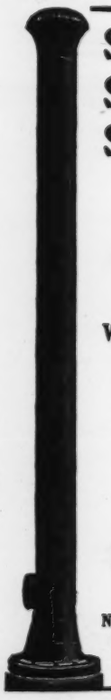

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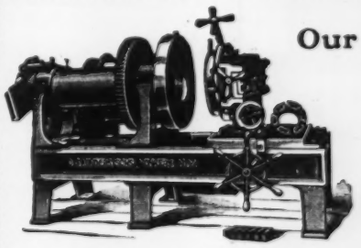

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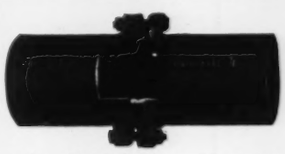

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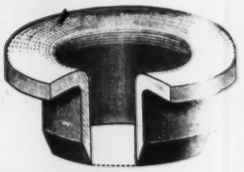

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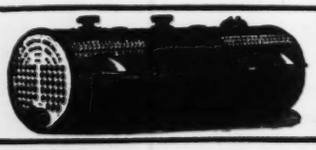

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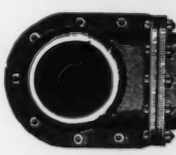

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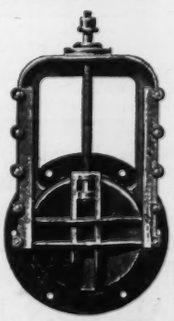

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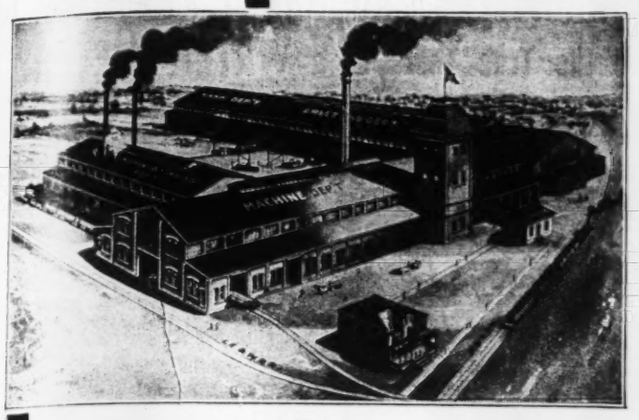

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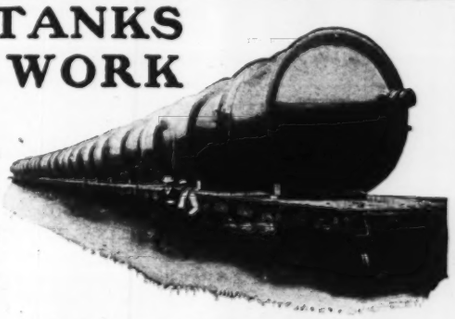

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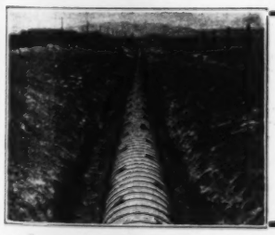

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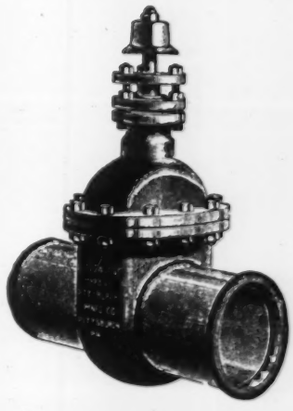

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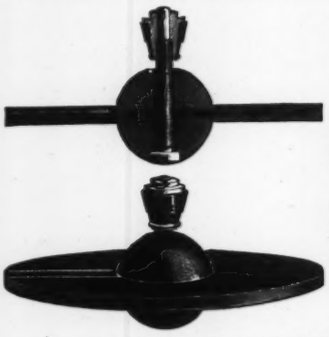

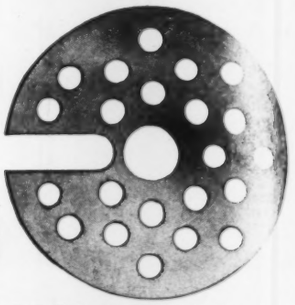

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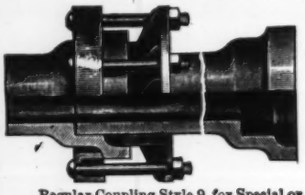

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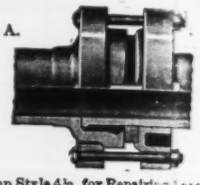

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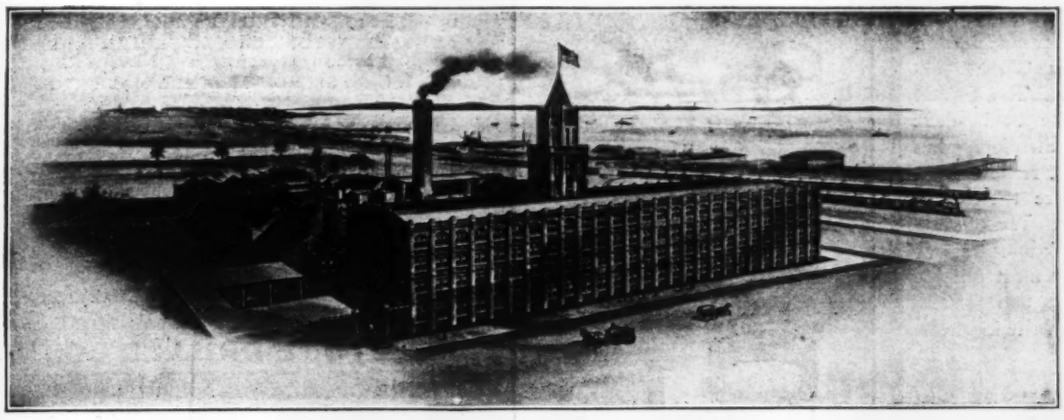

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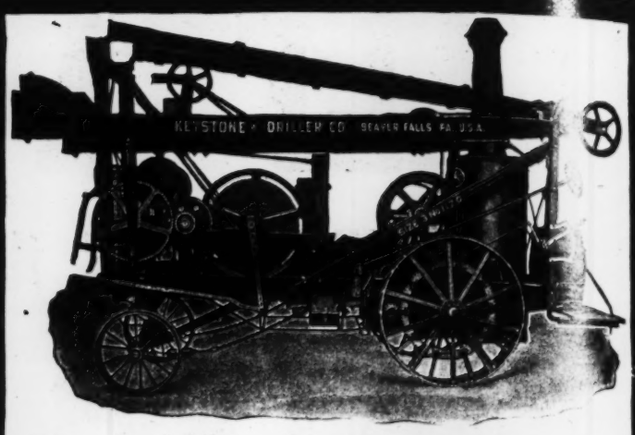

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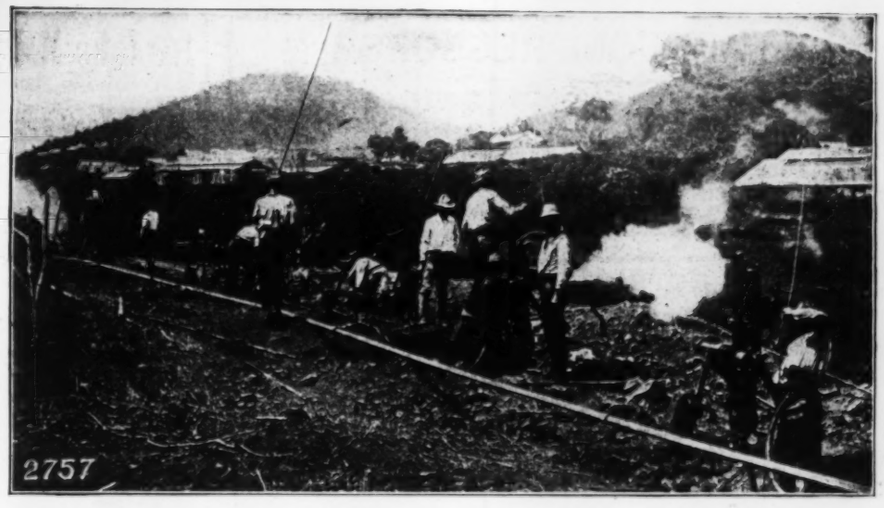

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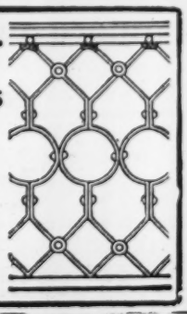

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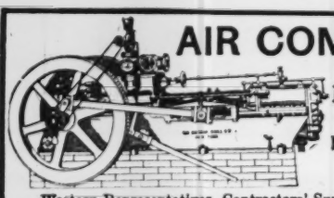

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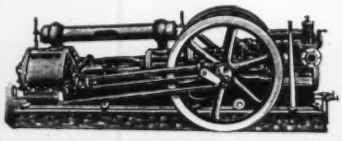

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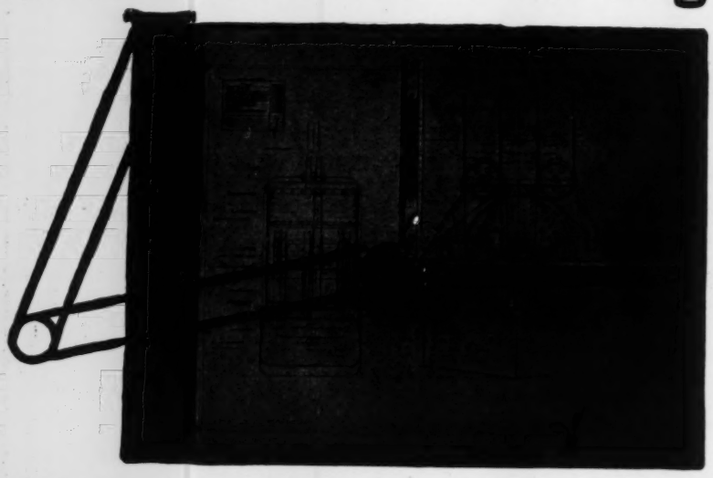

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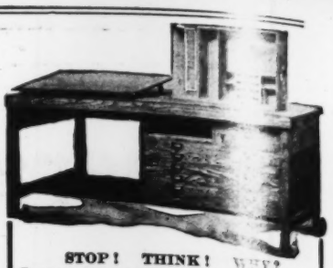

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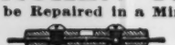

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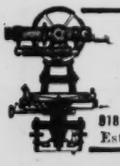

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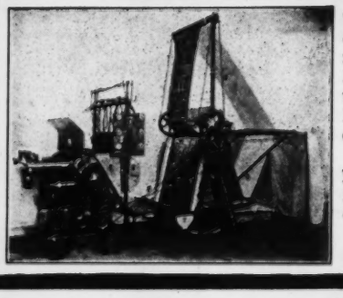

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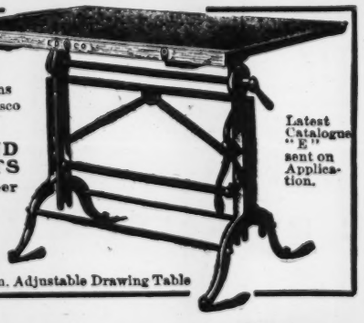

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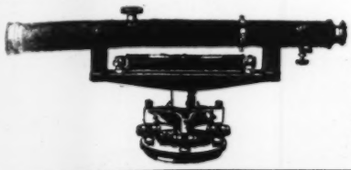

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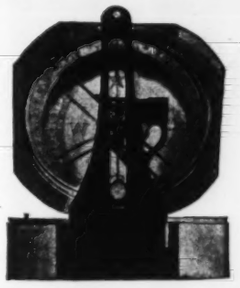

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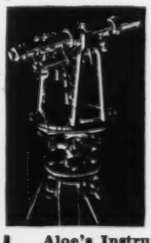

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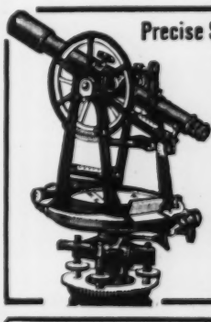

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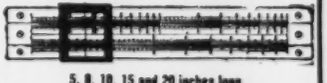

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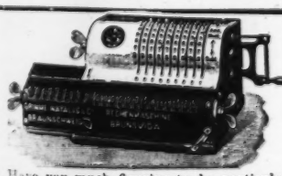

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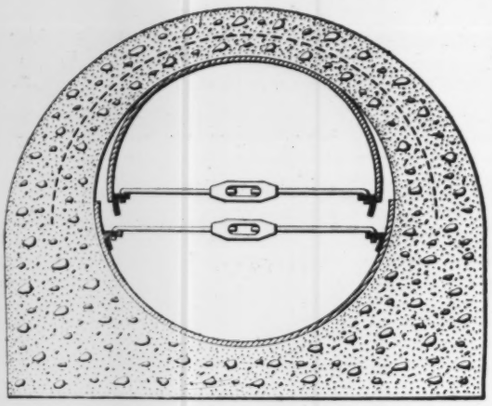

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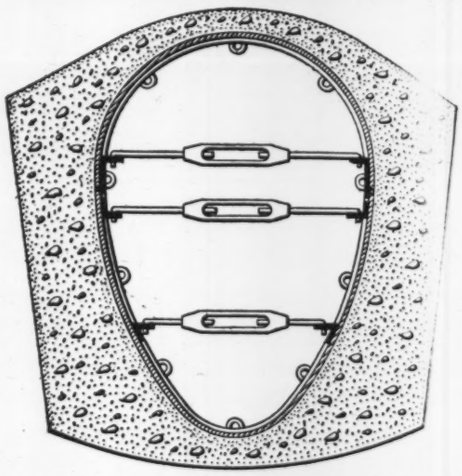
A Money Saver

For Concrete and Brick Sewer Construction



SECTION OF EGG-SHAPED SEWER SHOWING "BLAW" CENTER IN POSITION.

Indestructible. Requires no repairs or renewals. | **Light.** Weighs less than an equal length of wood centers. | **Strong.** Depends for strength on tension rods like the spokes of a bicycle wheel.

A CONTRACTOR

Should Use Them Because They Are

Labor Savers, being made in sections weighing less than 150 pounds each. Two or three men easily handle the centering for any sized conduit.

Time Savers. Concrete sets more quickly against steel; there is no sticking, hammering or troublesome delay separating the centers from the concrete, and being light the steel centers are more quickly moved and set up than wood centers.

Space Savers. When not in use they nest into each other like a pile of saucers, and when in use the whole area of the conduit is available for passing through.

Worry Savers. The centering arrives on the job all ready to set up and go to work with.

Strike Savers. The sections are connected by means of simple staples and wedges. No carpenters or mechanics are required, and the same class of men who place the concrete set up and move the centers.

AN ENGINEER

Should Advocate Them Because They Give

A Smooth Inside Surface absolutely continuous without any joint marks, crack marks, or protuberances.

A Glossy Finish, much more dense, slippery and durable than a finish against wood.

A Uniform Cross-section. Each piece is of steel, made strictly to a template of a size determined by the Engineer, and all sections are interchangeable and stay so, insuring the same section and size of conduit throughout the work.

A Greater Carrying Capacity. Owing to the above reasons the coefficient of roughness is decreased fully ten per cent., allowing a greater carrying capacity or a reduction in size.

No Excessive Strains, such as those caused by hammering, jarring or prying wood centers to start them. The steel centers are pulled from the concrete by the application of steady but irresistible force of the turnbuckle.

Centers are not Sold. They are Leased for stated periods at costs much below the cost of wooden centering for the same work. Write for prices, giving size, total length of sewer and length of centering needed.

BLAW Collapsible Steel Centering Co.

Westinghouse Building, PITTSBURG, PA.

A complete edition of the ENGINEERING NEWS BUYERS' GUIDE, in book form, for office use—228 pages—containing 1287 headings, 4000 names and hundreds of cross references, will be sent FREE on request to all subscribers and advertisers, and to others on receipt of 15 cents.

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Architects' Supplies. See Draftsmen's Supplies

Architectural and Ornamental Iron Work. See Bridges

Artesian Wells, Tools and Pumps
Austin Mfg. Co., Chicago.
Cameron Steam Pump Works, N. Y.
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Broderick & Bascom Rope Co., St. Louis.
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Leschen, A., & Sons Rope Co., St. Louis.

Ash Ejectors
Blake, George F., Mfg. Co., New York.
Morris Machine Works, Baldwinsville, N. Y.
Taylor Iron & Steel Co., Highbridge, N. J.

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U. S. Drying Engineering Co., N. Y.
Vulcan Iron Works, Wilkes-Barre, Pa.

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Leschen, A., & Sons Rope Co., St. Louis.
Lidgerwood Mfg. Co., New York.
Marion Steam Shovel Co., Marion, O.
Rodger Ballast Car Co., Chicago.

Beam Shears
Pels & Co., Henry, 68 Broad St., New York.

Bearings—Ball and Roller
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Ball Bearing Co., Philadelphia.
Link-Belt Engineering Co., Philadelphia.
Standard Roller-Bearing Co., Philadelphia.

Bearings—Oilless and Self-Oiling
Caldwell, H. W., & Son Co., Chicago.
New Am. Metaline Co., Long Island City, N. Y.
Poole Engineering & Machine Co., Baltimore.
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Belting—Chain, Link, Canvas, Etc. (see also Coal Handling)
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Caldwell, H. W., & Son Co., Chicago.
Easton Machine Works, Pittston, Pa.
Graton & Knight Mfg. Co., Worcester, Mass.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Engineering Co., Philadelphia.
Main Belting Co., Philadelphia.
Mineral Ridge Mfg. Co., Mineral Ridge, O.
Robins Conveying Belt Co., Park Row Bldg., N. Y.
Webster Mfg. Co., Chicago.

Bending Machines
Bethlehem Fdy. & Mach. Co., So. Bethlehem, Pa.
Buffalo Forge Co., Buffalo, N. Y.

Blast Furnaces and Fittings
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Enterprise Boiler Co., Youngstown, O.
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Pusey, Eng. Works, New Castle, Pa.
Petroleum Iron Works, Washington, Pa.
Reeves Bros. Co., Alliance, O.
Riter-Conley Mfg. Co., Pittsburg.
Wilson Boiler Works, Sharon, Pa.
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Variety Iron Works Co., Cleveland.
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Blocks
A. W. Patterson Co., Pittsburg, Pa.

Blowers and Bellows (see Ventilating Apparatus)

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Rondinella, L. F., Stephen Girard Bldg., Phila.

Boiler Fittings, Mountings and Parts
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Rawson & Morrison Mfg. Co., Boston.
Vulcan Iron Works, Toledo, O.

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Bacon, Earle C., New York.
Byers, John F., Machine Co., Ravenna, O.
Caldwell, W. E., Co., Louisville, Ky.
Cameron Steam Pump Works, New York.
Chicago Bridge & Iron Co., Chicago.
Clinton Bridge & Iron Works, Clinton, Iowa.
Climax Road Machine Co., Marathon, N. Y.
Contractors' Supply & Equip. Co., Chicago.
Des Moines Bridge & Iron Works, Des Moines, Ia.
Dobbie Foundry & Mach. Co., Niagara Falls, N. Y.
Enterprise Boiler Co., Youngstown, O.
Fairbanks, Morse & Co., Chicago.
Griffith & Wedge Co., Zanesville, O.
Hammond Iron Works, Warren, Pa.
Hodge Boiler Works, East Boston, Mass.
Keeler, E., Co., Williamsport, Pa.
Kingsford Fdy. & Machine Co., Oswego, N. Y.
Lambert Hoisting Engine Co., Newark, N. J.
Leffel, James, & Co., Springfield, O.
Lidgerwood Mfg. Co., New York.
McNeil, James, & Bro. Co., Pittsburg.
Meehan Boiler & Const. Co., Lowellville, O.
Moore, Chas. C., & Co., San Francisco.
Morris, I. P., Co., Philadelphia.
Mundy, J. S., Newark, N. J.
Parker Boiler Co., Chestnut Hill, Philadelphia.
Petroleum Iron Wks. Co., Washington, Pa.
Pittsburg (Pa.) Industrial Iron Works.
Puget Sound Br. & Dredging Co., Seattle, Wash.
Rawson & Morrison Mfg. Co., Boston.
Reeves Bros. Co., Alliance, O.
Riter-Conley Mfg. Co., Pittsburg.
Scaife, Wm. B., & Sons Co., Pittsburg.
Sharon Boiler Works, Sharon, Pa.
Smith, Theo., & Sons Co., Jersey City, N. J.
Struthers-Wells Co., Warren, Pa.
Tippett & Wood, Phillipsburg, N. J.
Warren City Tank & Boiler Wks., Warren, O.
Watertown Engine Co., Watertown, N. Y.
Williamson Bros. Co., Philadelphia.

Bolt and Rivet Cutters
Helwig Mfg. Co., St. Paul, Minn.
Stow Flexible Shaft Co., Philadelphia.

Bolts—Expansion, Toggle, Etc.
Cleveland City Forge Co., Cleveland.
N. J. Fdy. & Machine Co., New York.
Patterson, W. W., Co., Pittsburg.
Steward & Romaine Mfg. Co., Philadelphia.

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Clark, M. C., Pub. Co., New York.
ENGINEERING NEWS PUBLISHING CO., N. Y.
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Wiley, John, & Sons, New York.
Spon & Chamberlain, New York.

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Putnam, H. J., & Co., Minneapolis.

Brackets and Cross Arms (see also Creosoting)
Albree, Chester B., Allegheny, Pa.
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Brick—Fire and Tile
American Sewer Pipe Co., Pittsburg.
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Dickey Clay Mfg. Co., Kansas City, Mo.
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Fredenburg & Lounsbury, New York.
Harbison-Walker Refractories Co., Pittsburg.
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Laclede Fire Brick Mfg. Co., St. Louis.
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Tomkins, Calvin, New York.
Warner, Chas., Co., New York.

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American Sewer Pipe Co., Pittsburg.
Arthur, W. H., Stamford, Conn.
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Mack Mfg. Co., Philadelphia.
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Monmouth Mining & Mfg. Co., Monmouth, Ill.
National Paving Brick Assn., Terre Haute, Ind.
New England Steam Brick Co., Providence, R. I.
Purington Paving Brick Co., Galesburg, Ill.
Reese-Hammond Fire Brick Co., Pittsburg.
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Standard Brick Mach. Co., 114 Liberty St., N. Y.

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Hanna Engineering Works, Chicago.
Scott Mfg. Co., St. Louis, Mo.
Standard Brick Mach. Co., 114 Liberty St., N. Y.

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Reid-Turnbull Constn. Co., Philadelphia.
San Francisco Bridge Co., San Francisco.
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Schreiber, L., & Sons Co., Cincinnati, O.
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Standard Bridge Co., Omaha, Neb.
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Strauss Bascule Bridge Co., Chicago.
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King Bridge Co., Cleveland.
Page & Schnable, Chicago.
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Strauss Bascule Bridge Co., Chicago.
Strobel Steel Const. Co., Chicago.
Toledo-Massillon Bridge Co., Toledo, O.

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King Bridge Co., Cleveland, O.
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Link-Belt Engineering Co., Philadelphia.
McMyler Mfg. Co., Cleveland.
Monongahela Mfg. Co., Monongahela, Pa.
Mundy, J. S., Newark, N. J.
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Rawson & Morrison Mfg. Co., Boston.
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Vulcan Iron Works, Chicago.
Webster Mfg. Co., Chicago.
Wellman-Seaver-Morgan Co., Cleveland.

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Tomkins, Calvin, 17 Battery Pl., New York.

Building Papers
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Bumping Posts
Mechanical Mfg. Co., Chicago.

Cableways—Suspension Wire Rope
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Broderick & Bascom Rope Co., St. Louis.
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Carson Trench Machine Co., Boston.
Exeter Machine Works, Exeter, Pa.
Flory, S., Mfg. Co., Bangor, Pa.
Lambert Hoisting Engine Co., Newark, N. J.
Leschen, A., & Sons Rope Co., St. Louis.
Lidgerwood Mfg. Co., 96 Liberty St., New York.
Mundy, J. S., 22 Prospect St., Newark, N. J.
N. J. Fdry. & Mach. Co., 9 Murray St., New York.
Northern Engineering Works, Detroit.
Rawson & Morrison Mfg. Co., Boston.
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Mensch, L. J., Monon Bldg., Chicago.
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Riter-Conley Mfg. Co., Pittsburg.
Scaife, Wm. B., & Sons Co., Pittsburg.
Sharon Boiler Works, Sharon, Pa.

Calculating Machines
Hamburger, Felix, 78 Fifth Ave., New York.

Car Heating and Lighting
Safety Car Heating & Lighting Co., New York.

Car Couplers, Fenders, Parts, Fittings and Car Wheels
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Koppel, Arthur, 68 Broad St., New York.
McConway & Torley Co., Pittsburg, Pa.
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Railway Steel-Spring Co., New York.
Russell Wheel & Foundry Co., Detroit.
Wiener, Ernst, Co., 66 Broad St., New York.
Wonham-Magor Engineering Wks., New York.

Cars
Allis-Chalmers Co., Milwaukee, Wis.
Bacon, Earl C., Havemeyer Bldg., New York.
Chattanooga (Tenn.) Car & Foundry Co.
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Contractors' Supply & Equip Co., Chicago.
De Trampe, Adam, Philadelphia, Pa.
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Fairbanks, Morse & Co., Chicago.
Fitz-Hugh, Luther, Co., Chicago.
Good Roads Machinery Co., New York.
Jeffrey Mfg. Co., Columbus, O.
Kalamazoo Ry. Supply Co., Kalamazoo, Mich.
Kilbourne & Jacobs Mfg. Co., Columbus, O.
Koppel, Arthur, 68 Broad St., New York.
Link-Belt Engineering Co., Philadelphia.
Meehan Boiler & Con. Co., Lowellville, O.
Mineral Ridge Mfg. Co., Mineral Ridge, O.
Motley, Green & Co., 66 Broad St., New York.
N. J. Fdry. & Mach. Co., 9 Murray St., New York.
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Pittsburg Industrial Iron Works, Pittsburg, Pa.
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Ramapo Iron Works, Hillburn, N. Y.
Rawson & Morrison Mfg. Co., Boston.
Robins Conveying Belt Co., 13 Park Row, N. Y.
Rodger Ballast Car Co., Chicago.
Russell Wheel & Foundry Co., Detroit.
Stuebner Iron Wks., 167 E. 34 St., L. I. City, N. Y.
Torbert, A. C., & Co., Chicago.
Union Iron Works, Hoboken, N. J.
United Concrete Mach'y Co., 949 Broadway, N. Y.
Wellman Seaver-Morgan Co., Cleveland, O.
Western Wheeled Scraper Co., Aurora, Ill.
Wiener, Ernst, Co., 66 Broad St., New York.
Wonham Magor Engineering Co., New York.

Cars—Second-Hand (see Second-Hand Supplies and For Sale Ads.)

Cars—Tank
Carroll-Porter Boiler & Tank Co., Pittsburg.
Enterprise Boiler Co., Youngstown, O.
Fairbanks, Morse & Co., Chicago.
Graver, Wm., Tank Works, East Chicago, Ind.
Petroleum Iron Works, Washington, Pa.
Reeves Brothers Co., Alliance, O.

Cars—Wrecking and Ditching
Industrial Works, Bay City, Mich.
Koppel, Arthur, 68 Broad St., New York.
Mundy, J. S., 22 Prospect St., Newark, N. J.

Carts and Wagons—Ash and Dump
Acme Road Machinery Co., Frankfort, N. Y.
Austin Mfg. Co., Chicago.
Briggs, J. E., Waterloo, Ia.
Climax Road Machine Co., Marathon, N. Y.
Dobbie Fdry. & Mach. Co., Niagara Falls, N. Y.
Fairbanks, Morse & Co., Chicago.
Good Roads Machinery Co., New York.
Kilbourne & Jacobs Mfg. Co., Columbus, O.
Ransome Concrete Mach'y Co., New York.
Troy Public Works Co., Utica, N. Y.
Troy Wagon Works Co., Troy, O.
Watson Wagon Co., Canastota, N. Y.
Western Wheeled Scraper Co., Aurora, Ill.

Castings and Forgings—Iron—Steel
Albree Iron Works, Allegheny, Pa.
Bacon, Earle C., 26 Cortlandt St., New York.
Belmont Iron Works, Philadelphia.
Builders' Iron Foundry, Providence, R. I.
Caldwell, H. W., & Son Co., Chicago.
Coldwell Wilcox Co., Newburgh, N. Y.
Cornell, J. B. & J. M., 26th St. & 11th Ave., N. Y.
Dimmick Pipe Co., Birmingham, Ala.
Dobbie Fdry. & Mach. Co., Niagara Falls, N. Y.
Jonaldson Iron Co., Emaus, Lehigh Co., Pa.
Drummond, M. J., & Co., New York.
Fox, John, & Co., 253 Broadway, New York.
Frontier Iron Works, Buffalo, N. Y.
Hilles & Jones Co., Wilmington, Del.
Leffel, James, & Co., Springfield, O.
Lehigh Car, Wheel & Axle Wks., Catasauqua, Pa.
Lynchburg Foundry Co., 220 Broadway, New York.
Marine Engine & Machine Co., New York.
Millar, Charles & Son Co., Utica, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Penna. Engineering Co., New Castle, Pa.
Pittsburg Mfg. Co., 28th St., Pittsburg.
Sessions Foundry Co., Bristol, Conn.
Smith, S. Morgan, Co., York, Pa.
Struthers-Wells Co., Warren, Pa.
Union Hydraulic Works, Philadelphia.
U. S. Cast Iron Pipe & Foundry Co., New York.
United Eng. & Fdry. Co., Pittsburg.
Vulcan Iron Works, 47 Milwaukee Ave., Chicago.
Vulcan Iron Works Co., Toledo, O.
Warren Foundry & Machine Co., New York.
Wood, R. D., & Co., 400 Chestnut St., Phila.

Cement Block Machines
American Hydraulic Stone Co., Denver, Colo.
Century Cement Machine Co., Rochester, N. Y.
Pettyjohn Bros., Terre Haute, Ind.
Scott Mfg. Co., St. Louis, Mo.

Cement-Making Machinery
Allis-Chalmers Co., Milwaukee, Wis.
Alexander Iron Works, Syracuse, N. Y.
Austin Mfg. Co., Chicago, Ill.
Bartlett, C. O., & Snow Co., Cleveland, O.
Bonnot Co., Canton, O.
Bradley Pulverizer Co., 92 State St., Boston.
Cresson, Geo. V., Co., 141 Liberty St., New York.
Cummer, F. D., & Son Co., Cleveland, O.
Kent Mill Co., 170 Broadway, New York.
Lehigh Car, Wheel & Axle Wks., Catasauqua, Pa.
Link-Belt Engineering Co., Philadelphia.
Power & Mining Mach'y Co., Cudahy, Wis.
Raymond Bros. Impact Pulverizer Co., Chicago.
Reeves Bros. Co., Alliance, O.
Risdon Iron Works, San Francisco, Cal.
Ruggles-Coles Eng'g Co., 39 Cortlandt St., N. Y.
Smidth, F. L., & Co., 41 Cortlandt St., N. Y.
Sturtevant Mill Co., Boston, Mass.
Taylor Iron & Steel Co., Highbridge, N. J.
Traylor Eng. Co., 114 Liberty St., N. Y.
Webster Mfg. Co., Chicago.

Cement—Natural and Portland
Alma Cement Co., Pittsburg.
Alpha Portland Cement Co., Easton, Pa.
Alsen Portland Cement Co., 45 Broadway, N. Y.
American Cement Co., 42 Sc. 15th St., Phila.
Atlas Portland Cement Co., 30 Broad St., N. Y.
Consol. Rosendale Cement Co., New York.
Copley Cement Mfg. Co., 1123 Broadway, N. Y.
Dexter Portland Cement (French & H.), Phila.
Edison Portland Cement Co., Philadelphia.
Empire Portland Cement Co., Warners, N. Y.
Fredenburg & Lounsbury, 289 4th Ave., N. Y.
Hartranft, Wm. G., Cement Co., Philadelphia.
Helderberg Cement Co., 78 State St., Albany, N. Y.
Illinois Steel Co., The Rookery, Chicago.
Kelley Island Lime & Transport Co., Cleveland.
Kosmos Portland Cement Co., Louisville, Ky.
Lawrence Cement Co., 1 Broadway, New York.
Marquette Portland Cement Co., Chicago.
Meacham & Wright, Chicago.
Newman's Akron Cement Co., 141 Erie St., Buffalo.
Penn-Allen Portland Cement Co., Allentown, Pa.
Penna. Cement Co., 26 Cortlandt St., New York.
Round Top Cement Co., Hancock, Md.
Snyder, Hiram, & Co., 229 Broadway, New York.
St. Louis Portland Cement Co., St. Louis, Mo.
Thorn Cement Co., Buffalo, N. Y.
Vulcanite Portland Cement Co., Philadelphia.
Warner, Chas., Co., 80 William St., New York.
Western Cement Co., 251 W. Main St., Louisville.

Cement Waterproofing
Waterproofing Co., New York.

Checks—Time and Merchandise
American Railway Supply Co., 24 Park Pl., N. Y.

Chemical Laboratories (see Professional Card Page)

Chimneys—Brick and Concrete
Atlas Const. Co., St. Louis.
Custodis Chimney Const. Co., Bennett Bldg., N. Y.
Cummings Structural Con. Co., Pittsburg.
Weber Steel Concrete Chimney Co., Chicago.

Chimneys—Iron and Steel (see Boilers)

Chutes—Mail
Cutler Mfg. Co., Rochester, N. Y.

Coal and Ore Handling and Conveying Machinery, Etc.

Bacon, Earle C., 26 Cortlandt St., New York.
Bartlett, C. O., & Snow Co., Cleveland, O.
Beatty, M., & Sons, Welland, Ontario.
Berquist, A. S., 515 Bedford Ave., Brooklyn, N.Y.
Broderick & Bascom Rope Co., St. Louis.
Browning Engineering Co., Cleveland, O.
Brown Hoisting Machinery Co., Cleveland, O.
Dodge Coal Storage Co., Philadelphia.
Exeter Machine Works, Pittston, Pa.
Gandy Belting Co., Baltimore, Md.
Hayward Co., 97 Cedar St., New York.
Hunt, C. W., Co., Stapleton, S. I., N. Y.
Jeffrey Mfg. Co., Columbus, O.
King Bridge Co., Cleveland, O.
Koppel, Arthur, 66 Broad St., New York.
Lambert Hoisting Engine Co., Newark, N. J.
Lamson Con. S. S. Co., 26 Arch St., Boston.
Lidgerwood Mfg. Co., 56 Liberty St., New York.
Link-Belt Engineering Co., Philadelphia, Pa.
Main Belting Co., Philadelphia.
Minn. Steel & Machinery Co., Minneapolis, Minn.
Monongahela Mfg. Co., Monongahela, Pa.
Mundy, J. S., 22 Prospect St., Newark, N. J.
National Hoisting Engine Co., Harrison, N. J.
N. J. Fdry. & Mach. Co., 9 Murray St., N. Y.
Pittsburg (Pa.) Industrial Iron Works.
Power & Mining Mach'y Co., Cudahy, Wis.
Rawson & Morrison Mfg. Co., Cambridgeport, Mass
Robins Conveying Belt Co., 13-21 Park Row, N. Y.
Rodger Ballast Car Co., Chicago.
Russell Wheel & Foundry Co., Detroit, Mich.
Vulcan Iron Works, Wilkes-Barre, Pa.
Webster Mfg. Co., Chicago.
Wellman-Seaver-Morgan Co., Cleveland, O.

Cocks (see Valves and Hydrants)

Computing Machines

Hamburger, Felix, 78 Fifth Ave., New York.

Concrete Mixers and Machinery

Austin Mfg. Co., Chicago, Ill.
Allis-Chalmers Co., Milwaukee, Wis.
Briggs Labor Saving Appliance Co., Waterloo, Ia.
Cockburn Barrow & Mach. Co., New York.
Contractors' Supply & Equipment Co., Chicago, Ill.
Drake Standard Machine Co., Chicago.
Eureka Mach. Co., Jackson, Mich.
Hains, Peter C., Washington, D. C.
Internat'l Fence & Fireproofing Co., Columbus, O.
Interstate Engineering Co., Bedford, O.
Link-Belt Engineering Co., Nicetown, Philadelphia.
McKelvey Concrete Machinery Co., Chicago.
Municipal Engineering & Contracting Co., Chicago.
Ransome Concrete Machinery Co., New York.
Scholl, Julian, & Co., New York.
Pittsburg Industrial Iron Works, Pittsburg, Pa.
Wilcox, W. H., & Co., Binghamton, N. Y.
United Concrete Machinery Co., New York.

Concrete Work (see Contractors and Fireproof Construction)

Copy Books—Letter

Bushnell, Alvah, Co., 4 N. 13th St., Philadelphia.

Conduits—Creosoted Wood. See Creosoting

Conduits—Vitrified Clay

Am. Pipe Mfg. Co., 112 N. Broad St., Phila.
Blackmer & Post Pipe Co., St. Louis.
Bond, Harold L., & Co., 140 Pearl St., Boston.
Dickey Clay Mfg. Co., Kansas City, Mo.
Evans & Howard Fire-Brick Co., St. Louis.
Gest, G. M., 277 Broadway, New York.

Contractors (see also Bridges)

Abbot-Gamble Co., New York and St. Louis.
American Pipe Mfg. Co., 112 Nor. Broad St., Phila.
Atlantic, Gulf & Pacific Co., New York.
Austin Drainage Excavator Co., F. C., Chicago.
Barber Asphalt Paving Co., Philadelphia.
Bates & Rogers Constr. Co., Chicago.
Bell Eng'ring & Constr. Co., 220 B'way, N. Y.
Briggs, J. Marvin, 17 Battery Pl., New York.
Cole Bros., 102 Fulton St., New York.
Cook Well Co., St. Louis, Mo.
Crandall, H. I., & Son, East Boston, Mass.
Cummings Structural Concrete Co., Pittsburg.
Cuozzo, D., 150 Nassau St., N. Y.
Eastern Construction Co., Brooklyn, N. Y.
Esson, W. A., & Co., Chicago.
Ferguson Contr. Co., Pittsburg.
Foundation Co., 37 Nassau St., New York.
Gest, G. M., 277 Broadway, New York.
Gilbreth, Frank B., 34 W. 26th St., New York.
Gillespie, T. A., Co., Pittsburg.
Holmes, A. L., Grand Rapids, Mich.
Levering & Garrigues Co., 552 W. 23d St., N. Y.
Lewis & Kitchen, 433 Wabash Ave., Chicago.
McMullen, Arthur, & Co., Park Row Bldg., N. Y.
Miller-Collins Co., 1133 Broadway, N. Y.
Morava Construction Co., Chicago.
Municipal Engineering & Contracting Co., Chicago.
Naughton Co., 299 Broadway, New York.
North American Dredging Co., San Francisco.
O'Rourke Engineering & Const. Co., New York.
Puget Sound Br. & Dredging Co., Seattle, Wash.
Phillips & Worthington, 136 Liberty St., New York.
Richards & Gaston, 143 Liberty St., New York.
Roberts & Abbott Co., Cleveland, Ohio.
Shoemaker, Lewis F., & Co., Philadelphia.
Snare & Triest, 39 Cortlandt St., New York.
Terry & Tench, Inc., New York City.
Troy Public Works Co., Utica, N. Y.
Tucker & Vinton, Inc., 156 Fifth Ave., New York.
Unit Concrete Steel Frame Co., Philadelphia.
United Engineering & Contracting Co., New York.
Warren Bros. Co., Boston.

Converters and Cooling Towers

Alberger Condenser Co., 95 Liberty St., New York.
Blake, George F., Mfg. Co., New York.
Davidson, M. T., 43 Keap St., Brooklyn, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Enterprise Boiler Co., Youngstown, O.
Epping-Carpenter Co., Pittsburg, Pa.
Graver, Wm., Tank Works, East Chicago, Ind.
Heisler Pumping Engine Co., Erie, Pa.
Petroleum Iron Works Co., Washington, Pa.
Penna. Engineering Works, New Castle, Pa.
Reeves Bros. Co., Alliance, O.
Ritter-Conley Mfg. Co., Pittsburg, Pa.
Southwark Foundry & Machine Co., Philadelphia.
Wellman-Seaver-Morgan Co., Cleveland, O.

Countershafts

Buffalo Forge Co., Buffalo, N. Y.
Builders' Iron Foundry, Providence, R. I.
Cresson, Geo. V., 141 Liberty St., New York.
Deming Co., Salem, O.
Stow Flexible Shaft Co., Philadelphia.
Sturtevant, B. F., Co., Hyde Park, Mass.

Conveyors—Automatic

Lamson Con. S. S. Co., Boston, Mass.

Conveyors and Conveying Machinery. See Coal and Ore Handling

Couplings—Friction Clutch

Brown Hoisting Machinery Co., Cleveland, O.
Browning Engineering Co., Cleveland, O.
Caldwell, H. W., & Son Co., Chicago.
Cresson, Geo. V., 141 Liberty St., New York.
Fairbanks, Morse & Co., Chicago.
Poole Engineering & Machine Co., Baltimore.
Smith, S. Morgan, York, Pa.

Cranes and Hoists

American Hoist & Derrick Co., St. Paul, Minn.
Beatty, M., & Sons, Welland, Ont.
Bacon, Earle C., Havemeyer Bldg., New York.
Boston Bridge Co., 6 Water St., Boston.
Brown Hoisting Machinery Co., Cleveland, O.
Browning Engineering Co., Cleveland, O.
Byers, John F., Machine Co., Ravenna, O.
Dobbie Fdy. & Machine Co., Niagara Falls, N. Y.
Dodge Coal Storage Co., Philadelphia.
Gen. Pneumatic Tool Co., Montour Falls, N. Y.
Hayward Co., 97 Cedar St., New York.
Hoisting Machinery Co., New York.
Industrial Works, Bay City, Mich.
Ingersoll-Rand Co., New York.
Interstate Engineering Co., Bedford, O.
King Bridge Co., Cleveland, O.
Lambert Hoisting Engine Co., Newark, N. J.
Link-Belt Engineering Co., Philadelphia.
Marion Steam Shovel Co., Marion, O.
McMyler Mfg. Co., Cleveland, O.
N. J. Foundry & Machine Co., New York.
North Penn. Iron Co., Philadelphia.
Northern Engineering Works, Detroit, Mich.
Pawling & Harnischfeger, Milwaukee, Wis.
Robins Conveying Belt Co., New York.
Sprague Electric Co., 531 W. 34th St., New York.
Torbert, A. C., Co., Chicago.
Wellman-Seaver-Morgan Co., Cleveland, O.
Williamson Bros. Co., Philadelphia.

Crayons and Pencils (see Draftsmen's Supplies)

Creosoting

Am. Creosoting Co., 29 Broadway, New York.
American Creosote Works, New Orleans, La.
Atlantic Creo. & Wood Pres'v'g Wks., Norfolk, Va.
Eppinger & Russell Co., 66 Broad St., New York.
Excelsior Wooden Pipe Co., San Francisco.
Humbird Lumber Co., Ltd., Sand Point, Idaho.
Intern't'l Creosoting & Const. Co., Galveston, Tex.
Meredith, J. P., Memphis, Tenn.
National Wood Pipe Co., Los Angeles, Cal.
New Orleans (La.) Wood Preserving Works.
Norfolk Creosoting Co., Norfolk, Va.
Puget Sound Timber Preserv'g Co., Everett, Wash.
San Francisco (Cal.) Timber Preserving Co.
Southern Creosoting Co., Slidell, La.
U. S. Wood Preserving Co., New York.
West Pascagoula (Miss.) Creosoting Works.
Wyckoff Pipe & Creosoting Co., Stamford, Ct.
Wyckoff Wood Pipe Co., Pittsburg, Pa.

Crossings—Railway (see Frogs)

Crushers and Pulverizers

Bacon, Earle C., 26 Cortlandt St., New York.
Bartlett, C. O., & Snow Co., Cleveland, O.
Exeter Machine Works, Pittston, Pa.
Jeffrey Mfg. Co., Columbus, O.
Lehigh Car, Wheel & Axle Wks., Catasauqua, Pa.
Link-Belt Engineering Co., Philadelphia.
Pittsburg Industrial Iron Works, Pittsburg, Pa.
Power Mining & Machinery Co., Cudahy, Wis.
Raymond Bros. Impact Pulverizer Co., Chicago.
Robins Conveying Belt Co., 13-21 Park Row, N. Y.
Sturtevant Mill Co., Boston, Mass.
Taylor Iron & Steel Co., Highbridge, N. J.
Traylor Engineering Co., 114 Liberty St., N. Y.
Vulcan Iron Works, Wilkes-Barre, Pa.

Cupolas—Foundry

Meehan Boiler & Construction Co., Lowellville, O.
Petroleum Iron Works, Washington, Pa.
Reeves Bros. Co., Alliance, O.
Steubner Iron Works, Long Island City, N. Y.

Curb Boxes and Monlds

Bourbon Copper & Brass Works, Cincinnati, O.
Builders' Iron Foundry, Providence, R. I.
Darling Pump & Mfg. Co., Williamsport, Pa.
Duplex Mfg. & Fdy. Co., Cleveland, O.
Steel Protected Concrete Co., Philadelphia, Pa.

Dams—Concrete Steel and Cofferdam

Ambursen Hydraulic Construction Co., Boston.
Richards & Gaston, 143 Liberty Street, New York.
Roberts & Abbott Co., Cleveland, O.
Friestedt Interlocking Channel Bar Co., Chicago.
U. S. Steel Piling Co., Chicago, Ill.
Miller-Collins Co., New York.

Derricks and Derrick Fittings and Hoisting Machinery (see also Coal and Ore Handling)

American Hoist & Derrick Co., St. Paul, Minn.
Baltimore Bridge Co., Baltimore.
Beatty, M., & Sons, Welland, Ont.
Broderick & Bascom Rope Co., St. Louis.
Browning Engineering Co., Cleveland, O.
Byers, John F., Machine Co., Ravenna, O.
Carlin's, Thomas, Sons Co., Allegheny, Pa.
Carson Trench Machine Co., Boston, Mass.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Coundtors' Supply & Equipment Co., Chicago.
Dobbie Fdy. & Machine Co., Niagara Falls, N. Y.
Flory, S., Mfg. Co., Bangor, Pa.
Hayward Co., The, 97 Cedar St., New York.
Lambert Hoisting Engine Co., Newark, N. J.
Lidgerwood Mfg. Co., 96 Liberty St., New York.
Mundy, J. S., 22 Prospect St., Newark, N. J.
National Hoisting Engine Co., Harrison, N. J.
N. J. Fdy. & Machine Co., 9 Murray St., N. Y.
Pawling & Harnischfeger, Milwaukee, Wis.
Pittsburg Industrial Iron Works, Pittsburg, Pa
Terry & Tench, Inc., New York City.

Ditching Machinery, Steam Shovels, Etc.

American Hoist & Derrick Co., St. Paul, Minn.
Atlantic Equipment Co., New York.
Atlantic, Gulf & Pacific Co., New York.
Austin Mfg. Co., Chicago.
Beatty, M., & Sons Co., Welland, Ont.
Bond, Harold L., & Co., 140 Pearl St., Boston.
Briggs, J. Marvin, 17 Battery Pl., New York.
Brown Hoisting Mach. Co., Cleveland, O.
Browning Engineering Co., Cleveland, O.
Bucyrus Co., South Milwaukee, Wis.
Carson Trench Machine Co., Boston.
Dunn Mfg. Co., Pittsburg, Pa.
Ellicott Machine Co., Baltimore, Md.
Flory, S., Mfg. Co., Bangor, Pa.
Furstenau, M. C., 615 Walnut St., Philadelphia.
Hayward Co., 97 Cedar St., New York.
Ingersoll-Rand Co., New York.
Kalamazoo (Mich.) Fdy. & Machine Co.
Lidgerwood Mfg. Co., 96 Liberty St., New York.
Marion Steam Shovel Co., Marion, O.
McMyler Mfg. Co., Cleveland.
Millar, Charles, & Son Co., Utica, N. Y.
Mundy, J. S., 22 Prospect St., Newark, N. J.
Municipal Engineering & Contracting Co., Chicago.
North American Dredging Co., San Francisco.
Risdon Iron Works, San Francisco, Cal.
Souther, John, & Co., 185 Summer St., Boston.
Toledo Foundry & Machine Co., Toledo, O.
Van Buren, Heck & Marvin Co., Findlay, O.
Vulcan Iron Works, Chicago.
Vulcan Iron Works, Toledo, O.
Western Wheeled Scraper Co., Aurora, Ill.

Diving Apparatus

Morse, A. J., & Son, 221 High St., Boston.
Shrader's, A., Son, 32 Rose St., New York.

Doors and Shutters

Commercial Sash & Door Co., Pittsburg, Pa.
Kinnear Mfg. Co., Columbus, Ohio.
J. W. Walker, Lewis Bldg., Pittsburg.
Variety Mfg. Co., Chicago.

Draftsmen's and Engineers' Instruments, Supplies, Clocks, Etc.

Ainsworth, Wm., & Sons, Denver, Colo.
Alexander, Clinton B., Clearfield, Pa.
Aloe, A. S., Co., 513 Olive St., St. Louis.
Alteneder, T., & Sons, Philadelphia.
American Drafting Furniture Co., Rochester, N. Y.
Architects' & Eng'rs' Supply Co., Kansas City, Mo.
Berger, C. L., & Sons, Boston.
Brandis, F. E., Sons & Co., Brooklyn, N. Y.
Buff & Buff Mfg. Co., Boston.
Chicago Blue Print Paper Co., Chicago.
Chicago Steel Tape Co., Chicago.
Dietzgen, Eugene, Co., 181 Monroe St., Chicago.
Elliott, B. K., Co., Pittsburg, Pa.
Favor, Ruhl & Co., 54 Park Pl., New York.
Gurley, W. & L. E., Troy, N. Y.
Hanna Mfg. Co., 380 River St., Troy, N. Y.
Hardmuth, L., & Co., 49 Barclay St., N. Y. City.
Heller & Brightly, Philadelphia.
Keuffel & Esser Co., 127 Fulton St., New York.
Koiesch & Co., 138 Fulton St., New York.
Kurtz, Langbein & Swartz, 606 Wood St., Pittsburg
Ledder, G. G., 9 Providence Court, Boston.
Lufkin Rule Co., Saginaw, Mich.
Mahn & Co., St. Louis.
Pfister, Herm., 428 Plum St., Cincinnati, O.
Prince, L. M., Cincinnati, O.
Queen & Co., 1010 Chestnut St., Philadelphia.
Riehle, E. G., & Sons, 108 Fulton St., New York.
Schwencke, Kirk & Co., 26 Church St., New York.
Soltman, E. G., New York.
Stackpole & Bro., 39 Fulton St., New York.
Starrett, L. S., Co., Athol, Mass.
Surveyors' Instrument Exchange, Philadelphia.
Ulmer, J. C., & Co., Cleveland, O.
Universal Drafting Machine Co., Cleveland, O.
Weber, F., & Co., Philadelphia.
Williams, Brown & Earle, Philadelphia.
Wittstock, P. & R., Berlin, Germany.
Young & Sons, Philadelphia.

Dredges (see Ditching Machinery)

Dredging Contractors. See Contractors

Drills—Rock and Ore

Allis-Chalmers Co., Milwaukee, Wis.
American Air Compressor Works, New York.
Austin Mfg. Co., Chicago.
Beatty, M., & Sons, Welland, Ont.
Dallett, Thos. H., Co., Philadelphia.
Dobbie Fdy. & Machine Co., Niagara Falls, N. Y.
Ingersoll-Rand Co., New York.
Jeffrey Mfg. Co., Columbus, O.
Keystone Driller Co., Box H, Beaver Falls, Pa.
Marvin Electric Drill Co., Binghamton, N. Y.
McKiernan Drill Co., 170 Broadway, New York.
Rogers, J. M., Gloucester City, N. J.
Star Drilling Machine Co., Akron, O.
Stow Flexible Shaft Co., Philadelphia.
Sullivan Machinery Co., Chicago.
Stow Mfg. Co., Binghamton, N. Y.
Wickes Bros., Jersey City, N. J.

Dryers and Drying Apparatus

Allis-Chalmers Co., Milwaukee, Wis.
Am. Blower Co., Detroit, Mich.
American Process Co., 62 William St., New York.
Bartlett, C. O., & Snow Co., Cleveland, O.
United Concrete Machinery Co., New York.
Cummer, F. D., & Son Co., Cleveland, O.
Jeffrey Mfg. Co., Columbus, O.
Kent Mill Co., 170 Broadway, New York.
Ruggles-Coles Engineering Co., New York.
Sturtevant, B. F., Co., Hyde Park, Mass.
U. S. Drying Engineering Co., New York.
Smidth, F. L., & Co., 41 Cortlandt St., N. Y.

Dynamite, Explosives, Exploders

Bond, Harold L., & Co., 140 Pearl St., Boston.
Contractors' Supply & Equipment Co., Chicago.
Keystone Powder Mfg. Co., Emporium, Pa.
National Powder Co., 318 Broadway, N. Y. City.
Star Electric Fuse Works, Wilkes-Barre, Pa.

Electrical Machinery, Dynamos, Etc.

Allis-Chalmers Co., Milwaukee, Wis.
C. & C. Electric Co., New York.
Crocker-Wheeler Co., Ampere, N. J.
Dallett, Thos. H., & Co., Philadelphia.
Ft. Wayne Electric Works, Ft. Wayne, Ind.
General Electric Co., Schenectady, N. Y.
Sprague Electric Co., New York.
Stow Flexible Shaft Co., Philadelphia.
Sturtevant, B. F., Co., Hyde Park, Mass.
Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

Elevators—Coal, Rock and Ore (see Coal and Ore Handling)

Elevators—Freight and Passenger

Fairbanks, Morse & Co., Chicago.
Marine Engine & Machine Co., New York.

Elevators—Grain Storage

Baltimore Bridge Co., Baltimore.
Bartlett, C. O., & Snow Co., Cleveland, O.
Berquist, A. S., Brooklyn, N. Y.
Caldwell, H. W., & Son Co., Chicago.
Exeter Machine Works, Pittston, Pa.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Engineering Co., Philadelphia.
Main Belting Co., Philadelphia.
Petroleum Iron Works, Washington, Pa.
Reeves Brothers Co., Alliance, O.
Steel Storage & Elevator Const. Co., Buffalo, N. Y.

Employment Bureaus

American School of Correspondence, Chicago.
Cleveland Engineering Agency, Cleveland, O.
Engineering Agency, Chicago, Ill.
Hapgood's Bureau, 309 Broadway, New York.
International Correspondence Schools, Scranton, Pa.
Julian Bros., 170 Mott St., New York.
Lalli, Mike, 89 Park St., New York.
New York Engineering Agency, New York.

Engineers—Civil, Consulting and Mechanical (see Professional Card Pages)

Engines—Gas, Gasoline and Oil

Backus Water Motor Co., Newark, N. J.
Fairbanks, Morse & Co., Chicago.
Marine Engine & Machine Co., New York.
Mietz & A., 128-138 Mott St., New York.
National Meter Co., 84 Chambers St., New York.
New Era Iron Works, 37 Dale Ave., Dayton, O.
Olds Gasoline Engine Works, Lansing, Mich.
Otto Gas Engine Works, Philadelphia.
Power & Mining Machinery Co., Cudahy, Wis.
Springfield Gas Engine Co., Springfield, O.
Thompson & Sons Mfg. Co., Beloit, Wis.
Tod, William, Co., Youngstown, O.

Engines—Hoisting

Allis-Chalmers Co., Milwaukee, Wis.
American Hoist & Derrick Co., St. Paul, Minn.
Bacon, Earle C., 26 Cortlandt St., New York.
Beatty, M., & Sons, Welland, Ont.
Brown Hoisting Machinery Co., Cleveland, O.
Byers, John F., Machine Co., Ravenna, O.
Carlin's, Thomas, Sons Co., Allegheny, Pa.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Dobbie Fdy. & Machine Co., Niagara Falls, N. Y.
Exeter Machine Works, Pittston, Pa.
Flory, S., Mfg. Co., Bangor, Pa.
Hoisting Machinery Co., New York.
Lambert Hoisting Engine Co., Newark, N. J.
Lidgerwood Mfg. Co., 96 Liberty St., New York.
Mead-Morrison Mfg. Co., 11 Broadway, New York.
Minn. Steel & Machinery Co., Minneapolis, Minn.
Monongahela Mfg. Co., Monongahela, Pa.
Mundy, J. S., 22 Prospect St., Newark, N. J.
National Hoist. Eng. Co., Harrison, N. J.
Traylor Engineering Co., New York, N. Y.
Vulcan Iron Works Co., Toledo, O.
Vulcan Iron Works, Wilkes-Barre, Pa.
Wellman-Seaver-Morgan Co., Cleveland, O.

Engines—Stationary Pumping

Allis-Chalmers Co., Milwaukee, Wis.
Atlas Engine Works, Indianapolis, Ind.
Am. Blower Co., Detroit, Mich.
Austin Mfg. Co., Chicago.
Bond, Harold L., & Co., 240 Pearl St., Boston.
Builders' Iron Foundry, Providence, R. I.
Buckeye Engine Co., Salem, O.
Buffalo Forge Co., Buffalo, N. Y.
Cameron, A. S., Steam Pump Works, New York.
Cook Well Co., St. Louis.
Davidson, M. T., 43 Keap St., Brooklyn, N. Y.
De Laval Steam Turbine Co., Trenton, N. J.
Dean Bros.' Steam Pump Works, Indianapolis, Ind.
Downie Pump Co., Downieville, Pa.
Edwards, Joseph, & Co., 416 Water St., New York.
Emerson Steam Pump Co., Washington, Pa.
Epping-Carpenter Co., Pittsburg, Pa.
Erie Pump & Engine Co., Erie, Pa.
Fairbanks, Morse & Co., Chicago.
Griffith & Wedge Co., Zanesville, O.
Heisler Mfg. Co., St. Mary's, O.
Hill Machine Co., Anderson, Ind.
International Steam Pump Co., New York.
Lawrence Pump & Engine Co., Lawrence, Mass.
Leffel, James, & Co., Springfield, O.
McGowan, John H., Co., Cincinnati, O.
Millar, Charles, & Son Co., Utica, N. Y.
Platt Iron Works Co., Dayton, O.
Pittsburg Industrial Iron Works, Pittsburg, Pa.
Power & Mining Machinery Co., Cudahy, Wis.
Pulsometer Steam Pump Co., New York.
Risdon Iron Works, San Francisco.
Shepherd Engineering Co., Franklin, Pa.
Southwark Foundry & Machine Co., Philadelphia.
Struthers, Wells & Co., Warren, Pa.
Tod, William, Co., Youngstown, O.
Troy Public Works Co., Utica, N. Y.
Watertown Engine Co., Watertown, N. Y.
U. S. Wind Engine & Pump Co., Batavia, Ill.

Exhaust Heads

Buffalo Forge Co., Buffalo, N. Y.
Sturtevant, B. F., Co., Hyde Park, Mass.
McGowan, John H., Co., Cincinnati, O.
N. Y. Blower Co., Chicago.

Excavating Machinery. See Ditching Machinery

Fans—Exhaust (see Ventilation)

Fence Gates, Etc. (see Railing)

Feed Water Heaters and Purifiers

Alberger Condenser Co., New York.
Blake, Geo. F., Mfg. Co., New York.
Green Fuel Economizer Co., Matteawan, N. Y.
Harrison Safety Boiler Works, Philadelphia.
Keeler, E., Co., Williamsport, Pa.
Petroleum Iron Works Co., Washington, Pa.
Platt Iron Works, Dayton, O.
Reeves Bros. Co., Alliance, O.
Scaife, Wm. B., & Sons Co., Pittsburg, Pa.
Stump, Reidenbaugh & Packard, Marion, O.

Filters—Grease and Oil

Harrison Safety Boiler Works, Philadelphia.
N. Y. Continental Jewell Filtration Co., New York.

Filters—Water. See Water Softening Plant

Fire Department Supplies

Bourbon Copper & Brass Works, Cincinnati, O.
Morse, A. J., & Son, 140 Congress St., Boston.
Union Water Meter Co., Worcester, Mass.

Fire-proof Construction—Steel

Abbott-Gamble Co., St. Louis.
Ambursen Hydraulic Construction Co., Boston.
Associated Expanded Metal Cos., New York.
Bell Engineering & Construction Co., New York.
Berger Mfg. Co., Canton, O.
Bone, F. A., & Son, Cincinnati, O.
Blome, R. S., Co., Chicago, Ill.
Buffalo Steel Co., Tonawanda, N. Y.
Clinton Wire Cloth Co., Clinton, Mass.
Concrete-Steel Engineering Co., New York.
Cummings Structural Concrete Co., Pittsburg, Pa.
Cuozzo, D., 150 Nassau St., N. Y.
Expanded Metal & Corrugated Bar Co., St. Louis.
Gabriel Concrete Steel Co., Detroit, Mich.
General Fireproofing Co., Youngstown, O.
Gilbreth, F. B., 34 West 26th St., New York.
Hennebique Construction Co., New York.
Inland Steel Co., Chicago, Ill.
Internat'l Fence & Fireproofing Co., Columbus, O.
Maurer, Henry, & Son, New York.
Mensch, L. J., Chicago, Ill.
Miller-Collins Co., 1133 Broadway, New York.
Miller & Co., H. C., Metropolitan Bldg., N. Y.
Monolith Steel Co., Inc., Washington, D. C.
National Fireproofing Co., Chicago.
New England Structural Co., Boston, Mass.
Ransome Concrete Machinery Co., New York.
Reid-Turnbull Constn. Co., Philadelphia.
Roberts & Abbott Co., Cleveland, O.
Roebling Construction Co., New York.
Simpson Bros. Corp., 166 Devonshire St., Boston.
St. Louis (Mo.) Expanded Metal Fireproofing Co.
Trussed Concrete Steel Co., Detroit, Mich.
Tucker & Vinton, Inc., 156 Fifth Ave., New York.
Turner Construction Co., 11 Broadway, New York.
Unit Concrete-Steel Frame Co., Philadelphia, Pa.
Weber Steel Concrete Chimney Co., Chicago.

Fire-Proofing Materials

Am. Loktile Co., Alexandria, Va.
Barrett Mfg. Co., 17 Battery Place, New York.
Berger Mfg. Co., Canton, O.
Buffalo Steel Co., Tonawanda, N. Y.
Crandall, Chas. D., Warren, Pa.
Electric Welding Mfg. Co., Pittsburg.
Evans & Howard Fire Brick Co., St. Louis.
General Fireproofing Co., Columbus, O.
Harbison-Walker Refractories Co., Pittsburg, Pa.
Inland Steel Co., Chicago, Ill.
Internat'l Fence & Fireproofing Co., Columbus, O.
Laclede Fire-Brick Mfg. Co., St. Louis.
Maurer, Henry, & Son, New York.
Mississippi Wire Glass Co., 277 Broadway, N. Y.
Monolith Steel Co., Inc., Washington, D. C.
National Fireproofing Co., Chicago.
New England Steam Brick Co., Providence, R. I.
Roebling Construction Co., Fuller Bldg., N. Y.

Fire Extinguishers—Automatic

Caldwell, W. E., & Co., Louisville, Ky.
Morse, A. J., & Son, 140 Congress St., Boston.
Walworth Mfg. Co., Boston.

Flush Tanks

Pacific Flush Tank Co., Chicago.

Fly Wheels

Builders' Iron Foundry, Providence, R. I.
Coldwell-Wilcox Co., Newburg, N. Y.
Cresson, Geo. V., Co., 141 Liberty St., New York.
Griffith & Wedge Co., Zanesville, O.
Poole Engineering & Machine Co., Baltimore, Md.
Tod, William, Co., Youngstown, O.
Vulcan Iron Works, 47 Milwaukee Ave., Chicago.

Forges—Blacksmith's and Portable

Buffalo Forge Co., Buffalo, N. Y.
Sturtevant, B. F., Co., Hyde Park, Mass.

Forgings and Founders and Machinists (see Castings)

Foundry Equipments and Supplies

Browning Engineering Co., Cleveland, O.
Enterprise Boiler Co., Youngstown, O.
Gardner Engineering Co., Inc., New York.
Link-Belt Engineering Co., Philadelphia.
Meehan Boiler & Const. Co., Lowellville, O.
N. J. Foundry & Machine Co., New York.
Penna. Engineering Works, New Castle, Pa.
Petroleum Iron Works, Washington, Pa.
Poole Engineering & Machine Co., Baltimore, Md.
Reeves Bros. Co., Alliance, O., and Syracuse, N. Y.
Riter-Conley Mfg. Co., Pittsburg, Pa.
Russell Wheel & Foundry Co., Detroit, Mich.
Steubner, G. L., Iron Works, New York.
Sturtevant, B. F., Co., Hyde Park, Mass.
Vulcan Iron Works, Wilkes-Barre, Pa.

Frogs and Switches—Railway

Kilby Frog & Switch Co., East St. Louis, Ill.
Fairbanks, Morse & Co., Chicago.
Pittsburg Frog & Switch Co., Pittsburg.
Indianapolis (Ind.) Switch & Frog Co.
Indiana Frog & Switch Co., Arthur, 66 Broad St., New York.
Morton Frog & Switch Co., 66 Broad St., New York.
Morton Frog & Switch Co., Green & Co., 66 Broad St., New York.
New York Switch & Crossing Co., Hoboken, N. J.
Pennsylvania Steel Co., Philadelphia.
Railroad Supply Co., 29 W. 34th St., New York.
Ramapo Iron Works, Hillburn, N. Y.
Wharton, Ernst, & Co., 66 Broad St., New York.
Union Switch & Signal Co., Swissvale, Pa.
Wellman Seaver Morgan Eng'ring Co., 27 Broadway, N. Y.

Fuel Economizers

Bartlett, C. O., & Snow Co., Cleveland, O.
Green Fuel Economizer Co., Matteawan, N. Y.
Hawley Safety Boiler Works, Philadelphia.
Stephenson, B. F., Co., Hyde Park, Mass.

Furnaces—Garbage and Refuse

American Process Co., 62 William St., New York.
Lewis & Kitchen, Chicago.

Furnaces—Gas, Lead Melting and Smelting

American Gas Furnace Co., 23 John St., New York.
Jones Machine Mfg. Co., Warren, Pa.
Monarch Mfg. Co., Decatur, Ill.
Rialto Iron Works, 279 Stewart St., San Francisco.
Sharon Boiler Works, Sharon, Pa.
Stephens, G. L. Iron Works, L. I. City, N. Y.
Traylor Engineering Co., New York, N. Y.
Wellman-Seaver-Morgan Co., Cleveland, O.

Furniture and Office Fittings

American Drafting Furniture Co., Rochester, N. Y.
Berger Mfg. Co., Canton, O.
Economy Drawing Table Co., Toledo, O.
General Fire-Proofing Co., Youngstown, O.

Garbage Disposal (see Furnaces, Garbage and Sewage Disposal)

Gas Machinery, Fittings and Fixtures, Compressors, Etc.

American Gas Furnace Co., 23 John St., New York.
Marine Engine & Machine Co., New York.
McNeil, James, & Bros. Co., Pittsburg, Pa.
Norwalk Iron Works, South Norwalk, Conn.
Power & Mining Machinery Co., Cudahy, Wis.
Sharon Boiler Works, Sharon, Pa.
Wellman-Seaver Morgan Co., Cleveland, O.

Gaskets—Bronze and Copper

Detroit Leather Specialty Co., Detroit, Mich.
Johns-Manville Co., H. W., New York.
U. S. Mineral Wool Co., New York.

Gates—Sluice. See Valves

Gauges (see Steam Specialties)

Gearing

Caldwell, H. W., & Son Co., Chicago.
Caldwell-Wilcox Co., Newburgh, N. Y.
Cresson, Geo. V., Co., 141 Liberty St., New York.
Jeffrey Mfg. Co., Columbus, O.
Poole Engineering & Machine Co., Baltimore.
Taylor Iron & Steel Co., Highbridge, N. J.
Vulcan Iron Works, 47 Milwaukee Ave., Chicago.

Glass—Fire-Resisting

Mississippi Wire Glass Co., 277 Broadway, N. Y.

Gloves

Luther, J. P., Glove Co., Berlin, Wis.

Governors—Steam Engine

Buffalo Forge Co., Buffalo, N. Y.
Clow, J. P., & Sons, Chicago.
Lombard Governor Co., 36 Whittier St., Boston.
Replogle Governor Works, Akron, O.

Governors—Water-Wheel

Leffel, James, & Co., Springfield, O.
Lombard Governor Co., 36 Whittier St., Boston.
Pelton Water Wheel Co., San Francisco.
Replogle Governor Works, Akron, O.
Risdon-Alcott Turbine Co., Mount Holly, N. J.

Graders and Scrapers—Earth. See Road Machinery

Graphite and Belt Dressing

Detroit Graphite Mfg. Co., Detroit, Mich.
Dixon, Joseph, Crucible Co., Jersey City, N. J.
Goheen Mfg. Co., Canton, O.
International Acheson Graphite Co., Niagara Falls.
National Paint Works, New York.

Grinding and Mixing Machinery. See Crushers and also Mixers

Hangers—Joist

Berger Mfg. Co., Canton, O.
Caldwell, H. W., & Son Co., Chicago.
Poole Engineering & Machine Co., Baltimore.

Heating (see Ventilating)

Electric Heaters

Johns-Manville Co., H. W., New York.

Hoisting and Conveying Machinery (see Coal and Ore Handling and Derricks)

Hoists (see Cranes)

Hose and Fittings

Buffalo Forge Co., Buffalo, N. Y.
Edson Mfg. Co., Boston, Mass.
Sprague Electric Co., New York.
Ingersoll-Sergeant Drill Co., New York.
Sullivan Machinery Co., Chicago.
Moore & Co., Chas. C., San Francisco, Cal.

Hydrants and Street Washers. See Valves

Hydraulic Rams

Cameron, A. S., Steam Pump Works, New York.
Watson-Stillman Co., 25 Dey St., New York.
Goulds Mfg. Co., Seneca Falls, N. Y.
Pelton Water Wheel Co., San Francisco.

Ice and Refrigerating Machinery

Featherstone Foundry & Machine Co., Chicago.
Marine Engine & Machine Co., New York.
Morris Machine Works, Baldwinsville, N. Y.

Injectors and Inspirators

Clow, James B., & Sons, Chicago.
Fairbanks, Morse & Co., Chicago.
Jenkenheimer Co., Cincinnati, O.

Inspection of Building Materials (see Professional Card Pages)

Instruments—Engineering, Surveying and Mathematical (see Draftsmen's Supplies)

Jacks—Hydraulic and Screw

Boston & Lockport Block Co., Boston.
Cleveland City Forge & Iron Co., Cleveland, O.
Watson-Stillman Co., Pittsburg, Pa.
Fairbanks, Morse & Co., Chicago.
Kalamazoo (Mich.) Ry. Supply Co.
Starrett, L. S., Co., Athol, Mass.
Watson-Stillman Co., 46 Dey St., New York.

Joints—Expansion

Coffin Valve Co., Boston.
Underwood & Co., H. B., Philadelphia.

Kilns—Cement (see also Dryers)

Bartlett, C. O., & Snow Co., Cleveland, O.
Bonnot Co., Canton, O.
Cresson, Geo. V., Co., 141 Liberty St., New York.
Cummer, F. D., & Son Co., Cleveland, O.
Enterprise Boiler Co., Youngstown, O.
Reeves Bros. Co., Alliance, O.
Smidth, F. L., & Co., New York.
Traylor Engineering Co., New York, N. Y.
U. S. Drying Engineering Co., New York.
Vulcan Iron Works, Wilkes-Barre, Pa.
Wellman-Seaver-Morgan Co., Cleveland, O.

Ladles—Foundry

Enterprise Boiler Co., Youngstown, O.
Meehan Boiler & Construction Co., Lowellville, O.
Poole Engineering & Machine Co., Baltimore.
Reeves Bros. Co., Alliance, O.
Riter-Conley Mfg. Co., Pittsburg, Pa.
Russell Wheel & Foundry Co., Detroit, Mich.
Sturtevant, B. F., Co., Hyde Park, Mass.
Vulcan Iron Works, Wilkes-Barre, Pa.
Warren City Tank & Boiler Works, Warren, O.

Lamp Posts

Belmont Iron Works, Philadelphia.
Bethlehem Fdy. & Mach. Co., So. Bethlehem, Pa.
Drummond, M. J., & Co., New York.
Fox, John, & Co., 253 Broadway, New York.

Lamps and Lanterns—Railway

General Electric Co., Schenectady, N. Y.
Safety Car Heating & Lighting Co., New York.

Lath, Metal (see Fireproof Construction)

Lawyers—Patent

Straley & Hasbrouck, 257 Broadway, New York.

Lights—Sidewalk and Vault. See Skylights

Lights—Contractors'

Kitson Hydro-Carbon Heat & Inc. Ltg. Co., Phila.
Wells Light Mfg. Co., New York.

Lockers—Metal

Gardner Engineering Co., Inc., New York.

Locomotives—Compressed Air

American Locomotive Co., New York.
Baldwin Locomotive Works, Philadelphia.
Davenport Locomotive Works, Davenport, Ia.
Porter, H. K., Co., Pittsburg, Pa.

Locomotives—Electric and Battery

American Locomotive Co., 111 Broadway, N. Y.
Baldwin Locomotive Works, Philadelphia.
Davenport Locomotive Works, Davenport, Ia.
De Trampe, Adam, Philadelphia.
General Electric Co., Schenectady, N. Y.
Hunt, C. W., & Co., Stapleton, S. I., N. Y.
Koppel, Arthur, 66 Broad St., New York.
Locomotive & Machine Co., Montreal, Canada.
Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

Locomotives—Geared

Byers, John F., Machine Co., Ravenna, O.
Hildenbrand, William, 1 Broadway, New York.
Lima Locomotive & Machine Co., Lima, O.

Locomotives—Industrial and Light (see also Second-Hand Supplies)

Carlin's, Thos., Sons Co., Allegheny, Pa.
Continental Railway Equip. Co., New York.
Davenport Locomotive Works, Davenport, Ia.
Fitz-Hugh, Luther Co., Chicago.
Lima Locomotive & Machine Co., Lima, O.
Porter, H. K., Co., Pittsburg, Pa.
Vulcan Iron Works, Wilkes-Barre, Pa.
Wonham-Magor Engineering Co., New York.

Locomotives—Steam

American Locomotive Co., 111 Broadway, N. Y.
Baldwin Locomotive Works, Philadelphia.
Davenport Locomotive Works, Davenport, Ia.
Fitz-Hugh, Luther Co., Chicago.
Lima Locomotive & Machine Co., Lima, O.
Porter, H. K., 531 Wood St., Pittsburg, Pa.

Logging Outfits and Machinery

Fitz-Hugh, Luther, Co., Chicago.
Jeffrey Mfg. Co., Columbus, O.
Lima Locomotive & Machine Co., Lima, O.
Marion Steam Shovel Co., Marion, O.
Porter, H. K., Co., Pittsburg, Pa.
Russell Wheel & Foundry Co., Detroit, Mich.
Troy Wagon Works Co., Troy, O.

Lubricators (see Steam Specialties)

Machine Tools

Albree, Chester B., Allegheny, Pa.
Allen, John F., 370 Gerard Ave., New York.
Bethlehem Fdy. & Machine Co., So. Bethlehem, Pa.
Builders' Iron Foundry, Providence, R. I.
Dallett, Thos. H., Co., Philadelphia.
Fairbanks, Morse & Co., Chicago.
Hanna Engineering Wks., 820 Elston Ave., Chicago.
Helwig Mfg. Co., St. Paul, Minn.
Pels, Henry, & Co., 668 Broad St., N. Y. City.
Stow Flexible Shaft Co., Philadelphia.

Machinery—Special

Grays Ferry Machine Co., Philadelphia.

Machinery—Second-Hand (see Second-Hand Supplies)

Meters, Meter Boxes and Fittings

American District Steam Co., Lockport, N. Y.
Berger, C. L., & Sons, Boston.
Bristol Co., Waterbury, Conn.
Buffalo Meter Co., Buffalo, N. Y.
Builders' Iron Foundry, Providence, R. I.
Clow, James B., & Sons, Chicago.
Drummond, M. J., & Co., 182 Broadway, N. Y.
General Electric Co., Schenectady, N. Y.
Hersey Mfg. Co., Boston.
National Meter Co., 84 Chambers St., New York.
Neptune Meter Co., L. I. City, N. Y.
Pittsburg Meter Co., East Pittsburg, Pa.
Simplex Meter Co., 112 N. Broad St., Philadelphia.
Thomson Meter Co., Brooklyn, N. Y.
Union Water Meter Co., Worcester, Mass.
Westinghouse Electric & Mfg. Co., Pittsburg, Pa.
Worthington, Henry R., 118 Liberty St., N. Y.

Mineral Wool

U. S. Mineral Wool Co., 143 Liberty St., N. Y.
Johns-Manville Co., H. W., 100 William St., N. Y.

Mining and Mill Machinery and Supplies (see also Coal and Ore Handling)

Abner-Doble Co., San Francisco.
Allis-Chalmers Co., Milwaukee, Wis.
American Process Co., New York.
Austin Mfg. Co., Chicago.
Bacon, Earle C., 26 Cortlandt St., New York.
Bartlett, C. O., & Snow Co., Cleveland, O.
Beatty, M., & Sons Co., Welland, Ont., Can.
Bethlehem Fdy. & Machine Co., So. Bethlehem, Pa.
Bradley Pulverizer Co., 92 State St., Boston.
Cresson, Geo. V., Co., 141 Liberty St., New York.
Drake Standard Machine Works, Chicago.
Exeter Machine Works, Pittston, Pa.
Fairbanks, Morse & Co., Chicago.
Ingersoll-Rand Co., 11 Broadway, New York.
Jeffrey Mfg. Co., Columbus, O.
Leschen, A., & Sons Rope Co., St. Louis.
Lidgerwood Mfg. Co., 96 Liberty St., New York.
Link-Belt Engineering Co., Nicetown, Philadelphia.
McKiernan Drill Co., 170 Broadway, New York.
Marion Steam Shovel Co., Marion, O.
Norwalk Iron Works Co., South Norwalk, Conn.
Oliver, Wm. J., Mfg. Co., Knoxville, Tenn.
Power & Mining Machinery Co., Cudahy, Wis.
Robins Conveying Belt Co., New York.
Sullivan Machinery Co., Chicago.
Traylor Engineering Co., New York, N. Y.
Tyler, W. S., Co., Cleveland, O.
Vulcan Iron Works, Wilkes-Barre, Pa.
Wellman-Seaver-Morgan Co., Cleveland, O.

Mixers—Cement, Asphalt and Mortar

Alexander Iron Works, Syracuse, N. Y.
Bartlett, C. O., & Snow Co., Cleveland, O.
Caldwell, H. W., & Son Co., Chicago.
Century Cement Machine Co., Rochester, N. Y.
Eureka Mch. Co., Jackson, Mich.
Hains, P. C., 416 McGill St., Washington.
International Fence & Fireproof Co., Columbus, O.
Interstate Engineering Co., Bedford, O.
Jeffrey Mfg. Co., Columbus, O.
Kent Mill Co., 170 Broadway, New York.
Municipal Engineering & Contracting Co., Chicago.
Smidth, F. L., & Co., New York.
Ransome Concrete Machinery Co., 11 B'way, N. Y.
Taylor Iron & Steel Co., Highbridge, N. J.
United Concrete Mach'y Co., Flatiron Bldg., N. Y.
Vulcan Iron Works, Wilkes-Barre, Pa.

Motors—Compressed Air

General Pneumatic Tool Co., Montour Falls, N. Y.
Helwig Mfg. Co., St. Paul, Minn.
Stow Flexible Shaft Co., Philadelphia.
Sturtevant, B. F., Co., Hyde Park, Boston.

Motors—Water and Steam (see Turbines)

Nickel Steel

Orford Copper Co., New York.

Nuts and Nut-Locks

American Bridge Co., 42 Broadway, New York.
Cleveland City Forge Co., Cleveland, O.
Steward & Romaine Mfg. Co., Philadelphia.

Packing—Flange and Joint

Clow, James B., & Sons, Chicago.
Detroit Leather Spec. Co., Detroit, Mich.
Johns-Manville Co., H. W., New York.
Power Specialty Co., 126 Liberty St., New York.

Paint, Varnish, Metal Coatings

Barrett Mfg. Co., 17 Battery Place, New York.
Buchanan-Foster Co., Philadelphia.
Chilton Paint Co., New York.
Detroit Graphite Mfg. Co., 141 Broadway, N. Y.
Dixon, Joseph, Crucible Co., Jersey City, N. J.
Goheen Mfg. Co., Canton, O.
Hydrex Felt & Eng. Co., 120 Liberty St., N. Y.
National Paint Works, Williamsport, Pa.
Rinald Brothers, Philadelphia.
Sicilian Asphalt Paving Co., New York.
Smith, Edward, & Co., 43 Broadway, New York.
Standard Paint Co., New York.
Sterling Varnish Co., Pittsburg, Pa.
Toch Bros., 468 West Broadway, New York.
Waterproofing Co., The, 151 W. 28th St., N. Y.

Paint and Whitewash Spraying Machines

Bartlett, C. O., & Snow Co., Cleveland, O.

Paper, Blue Print and Apparatus (see Blue Print Apparatus)

Paving Blocks—Stone

Alpha Portland Cement Co., Alpha, N. J.
Leopold, J., & Co., 18 Broadway, New York.
Nash Road, The, Borough of Brooklyn, N. Y.

Paving Blocks—Wood. See Creosoting

Pile Drivers, Hammers and Jets

American Hoist & Derrick Co., St. Paul, Minn.
Austin Mfg. Co., Chicago, Ill.
Bartlett, A. F., & Co., Saginaw, Mich.
Beatty, M., & Sons Co., Welland, Ont.
Briggs, J. M., 17 Battery Pl., New York.
Bucyrus Co., South Milwaukee, Wis.
Dobbie Fdy. & Machine Co., Niagara Falls, N. Y.
Flory, S., Mfg. Co., Bangor, Pa.
Hayward Co., 97 Cedar St., New York.
Industrial Works, Bay City, Mich.
Lidgerwood Mfg. Co., 96 Liberty St., New York.
Mundy, J. S., 22 Prospect St., Newark, N. J.
Gilbreth, F. B., 34 West 26th St., New York.
Rawson & Morrison Mfg. Co., Boston.
Toledo Foundry & Machine Co., Toledo, O.
Vulcan Iron Works, 47 Milwaukee Ave., Chicago.
Vulcan Iron Works Co., Toledo, O.

Pile Shoes

Edson Mfg. Co., 257 Atlantic Ave., Boston.
Friestedt Interlocking Channel Bar Co., Chicago.
Jarvis, Steinmetz & Co., Drexel Bldg., Phila.
Patterson, W. W., Co., 54 Water St., Pittsburg, Pa.
Taylor Iron & Steel Co., Highbridge, N. J.

Piles and Piling—Concrete

Cowing Engineering Co., Cleveland, O.
Raymond Concrete Pile Co., Chicago.
Simplex Concrete Piling Co., Philadelphia.
Underwriters' E'g & Con. Co., 34 W. 26th St., N.Y.

Piles—Sheet (see Creosoting)

Piles—Interlocking

American Bridge Co., New York.
Friestedt Interlocking Channel Bar Co., Chicago.
U. S. Steel Piling Co., Chicago, Ill.

Pipe—Covering

H. W. Johns-Manville Co., New York.

Pipe—Iron and Steel

American Cast Iron Pipe Co., Birmingham, Ala.
American Pipe Mfg. Co., 112 No. Broad St., Phila.
Bellefontaine Bridge Co., Bellefontaine, O.
Bethlehem Fdy. & Machine Co., So. Bethlehem, Pa.
Builders' Iron Foundry, Providence, R. I.
Central Foundry Co., New York.
Clow, James B., & Sons, Chicago.
Coldwell-Wilcox Co., Newburgh, N. Y.
Dimmick Pipe Co., Birmingham, Ala.
Donaldson Iron Co., Emaus, Lehigh Co., Pa.
Drummond, M. J., & Co., 182 Broadway, N. Y.
Fox, John, & Co., 253 Broadway, New York.
Gillespie, T. A., & Co., Pittsburg, Pa.
Lynchburg Fdy. Co., 220 Broadway, New York.
Massillon Iron & Steel Co., Massillon, O.
McWane Pipe Works, Lynchburg, Va.
Millar, Charles, & Son Co., Utica, N. Y.
Pittsburg Mfg. Co., Pittsburg, Pa.
Union Hydraulic Works, Philadelphia.
U. S. Cast Iron Pipe & Foundry Co., New York.
Warren Foundry & Machine Co., New York.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia.

Pipe—Lead

Clow, James B., Sons, Chicago.
Drummond, M. J., & Co., 182 Broadway, New York.
Fox, John, & Co., 253 Broadway, New York.
Millar, Charles, & Son Co., Utica, N. Y.

Pipe—Riveted Steel

American Spiral Pipe Works, Chicago.
East Jersey Pipe Co., 71 Broadway, New York.
Gillespie, D. A., & Co., Pittsburg, Pa.
McNeil, Jas., & Bro., Pittsburg, Pa.
Petroleum Iron Works, Washington, Pa.
Reeves Bros. Co., Alliance, O.
Tippett & Wood, Phillipsburg, N. J.

Pipe—Vitrified Clay and Sewer

American Pipe Mfg. Co., Philadelphia.
American Sewer Pipe Co., Pittsburg, Pa.
Blackmer & Post Pipe Co., St. Louis.
Climax Road Machine Co., Marathon, N. Y.
Dickey, W. S., Clay Mfg. Co., Kansas City, Mo.
Drummond, M. J., & Co., 182 Broadway, New York.
East Ohio Sewer Pipe Co., Irondale, O.
Fox, John, & Co., 253 Broadway, New York.
Jackson, John H., 117 3d Ave., Albany, N. Y.
Macomb Sewer Pipe Co., Kansas City, Mo.
Monmouth Mining & Mfg. Co., Monmouth, Ill.
Post Pipe Co., Texarkana, Tex.
Purington Paving Brick Co., Galesburg, Ill.

Pipe and Poles—Wooden (see Creosoting)

Pipe Cutting and Threading Machines

Saunder's, D., Sons, Yonkers, N. Y.
Smith, A. P., Mfg. Co., Newark, N. J.
Walworth Mfg. Co., Boston.

Pipe Fittings (Brackets, Hangers, Repair Sleeves, Strainers, Etc.)

Bourbon Copper & Brass Works, Cincinnati, O.
Central Foundry Co., New York.
Clow, James B., & Sons, Chicago.
Donaldson Iron Co., Emaus, Lehigh Co., Pa.
Dresser, R. S., Bradford, Pa.
Drummond, M. J., & Co., New York.
Fox, John, & Co., 253 Broadway, New York.
Lynchburg Foundry Co., 220 Broadway, New York.
Massillon (Ohio) Iron & Steel Co.
Smith, A. P., Mfg. Co., Newark, N. J.
Union Hydraulic Works, Philadelphia.
Walworth Mfg. Co., Boston.
Watkins, Thomas, Johnstown, Pa.

Pipe Joints—Flexible Water Pipe, and High Pressure Pipe

Coldwell-Wilcox Co., Newburgh, N. Y.
Donaldson Iron Co., Emaus, Lehigh Co., Pa.
Fox, John, & Co., 253 Broadway, New York.
Holmes, A. L., Grand Rapids, Mich.
Warren Foundry & Machine Co., New York.
Watkins, Thomas, Johnstown, Pa.

Pitometers

Pitometer Co., New York.

Plows—Contractors'. See Road Machinery

Pneumatic Tools, Riveters, Clippers, Etc.

Albree, Chester B., Allegheny, Pa.
Allen, John F., 370 Gerard Ave., New York.
American Air Compressor Works, New York.
Clayton Air Compressor Works, New York.
Dallett, Thos. H., Co., Philadelphia.
General Pneumatic Tool Co., Montour Falls, N. Y.
Hanna Engin'ring Works, 820 Elston Ave., Chicago.
Helwig Mfg. Co., St. Paul, Minn.
Ingersoll-Rand Co., New York.
Pels, Henry, & Co., 68 Broad St., N. Y. City.
Stow Flexible Shaft Co., Philadelphia.

Pneumatic Tubes and Carriers

Lamson Con. S. S. Co., 26 Arch St., Boston.

Poles and Posts—Iron and Steel, Trolley Posts, Etc.

Belmont Iron Works, Philadelphia.
Drummond, M. J., & Co., New York.
Donaldson Iron Co., Emaus, Lehigh Co., Pa.
Fox, John, & Co., 253 Broadway, New York.

Portable Buildings, Greenhouses, Etc.

Rendle, A. E., 428 11th Ave., New York.

Power Transmission Machinery

Aermotor Co., Chicago.
American Mfg. Co., 95 Wall St., New York.
Broderick & Bascom Rope Co., St. Louis.
Browning Engineering Co., Cleveland, O.
Caldwell, H. W., & Son Co., Chicago.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Cresson, G. V., Co., 141 Liberty St., New York.
Exeter Machine Works, Pittston, Pa.
Flory, S., Mfg. Co., Bangor, Pa.
Jeffrey Mfg. Co., Columbus, O.
Leschen, A., & Sons Rope Co., St. Louis.
Link-Belt Engineering Co., Nicetown, Philadelphia.
Minn. Steel & Machinery Co., Minneapolis.
Monongahela Mfg. Co., Monongahela, Pa.
Mundy, J. S., 22 Prospect St., Newark, N. J.
Poole Engineering & Machine Co., Baltimore.
Power & Mining Machinery Co., Cudahy, Wis.
Rockwood Mfg. Co., Indianapolis, Ind.
Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

Pulleys and Blocks

Boston & Lockport Block Co., Boston.
Byers, John F., Machine Co., Ravenna, O.
Caldwell, H. W., & Son Co., Chicago.
Cresson, Geo. V., 141 Liberty St., New York.
Dobbie Fdy. & Machine Co., Niagara Falls, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Leschen, A., & Sons Rope Co., St. Louis.
N. J. Foundry & Machine Co., New York.
Poole Engineering & Machine Co., Baltimore.
Risdon-Alcott Turbine Co., Mount Holly, N. J.
Smith, S. Morgan, Co., York, Pa.
Variety Iron Works Co., Cleveland, O.
Yale & Towne Mfg. Co., New York.

Pulverizers (see Crushers)

Pumps—Air Lift and Artesian

Alberger Condenser Co., 95 Liberty St., New York.
American Air Compressor Works, New York.
Cameron, A. S., Steam Pump Works, New York.
Cook Well Co., St. Louis.
Davidson, M. T., 58 Keap St., Brooklyn, N. Y.
Dean Bros.' Steam Pump Works, Indianapolis, Ind.
Deane Steam Pump Co., 116 Liberty St., New York.
Deming Co., Salem, O.
Downie Pump Co., Downieville, Pa.
Epping-Carpenter Co., Pittsburg, Pa.
Goulds Mfg. Co., Seneca Falls, N. Y.
Heisler Mfg. Co., St. Mary's, O.
Hill Machine Co., Anderson, Ind.
Ingersoll-Rand Co., New York.
McGowan, John H., Co., Cincinnati, O.
Otto Gas Engine Co., Philadelphia.
Platt Iron Works, Dayton, O.
Southwark Foundry & Machine Co., Philadelphia.
Tod, William, Co., Youngstown, O.
U. S. Wind Engine & Pump Co., Batavia, Ill.
Weinman Machine Works, Columbus, O.

Pumps—Diaphragm

Bond, Harold L., & Co., 140 Pearl St., Boston.
Boston & Lockport Block Co., Boston.
Deming Co., Salem, O.
Edson Mfg. Co., 255 Atlantic Ave., Boston.
Goulds Mfg. Co., Seneca Falls, N. Y.

Pumps—Electric

Cameron, A. S., Steam Pump Works, New York.
Davidson, M. T., 43 Keap St., Brooklyn, N. Y.
Dean Bros.' Steam Pump Works, Indianapolis, Ind.
De Laval Steam Turbine Co., Trenton, N. J.
Deming Co., Salem, O.
Downie Pump Co., Downieville, Pa.
General Electric Co., Schenectady, N. Y.
Goulds Mfg. Co., Seneca Falls, N. Y.
Heisler Mfg. Co., St. Mary's, O.
Holly Mfg. Co., 148 Liberty St., New York.
McGowan, John H., Co., Cincinnati, O.

Pumps—Fire Force and Power

Atlas Engine Works, Indianapolis, Ind.
Blake, George F., Mfg. Co., New York.
Cameron, A. S., Steam Pump Works, New York.
Cook Well Co., St. Louis.
Dean Bros.' Steam Pump Works, Indianapolis, Ind.
Deming Co., Salem, O.
Edson Mfg. Co., 255 Atlantic Ave., Boston.
Goulds Mfg. Co., Seneca Falls, N. Y.
McGowan, John H., Co., Cincinnati, O.
Otto Gas Engine Works, Philadelphia, Pa.
U. S. Wind Engine & Pump Co., Batavia, Ill.
Weinman Machine Works, Columbus, O.

Pumps—Steam, Sewage, Quarry, Mining, Irrigating and Dredging, Centrifugal and Rotary (see Engines—Stationary)

Pumps—Vacuum

Alberger Condenser Co., 95 Liberty St., New York.
Bury Compressor Co., Erie, Pa.
Cameron, A. S., Steam Pump Works, New York.
Dean Bros.' Steam Pump Works, Indianapolis, Ind.
Deming Co., Salem, O.
Epping-Carpenter Co., Pittsburg, Pa.
Goulds Mfg. Co., Seneca Falls, N. Y.
Heisler Mfg. Co., St. Mary's, O.
International Steam Pump Co., New York.
McGowan, John H., Co., Cincinnati, O.
Platt Iron Works Co., Dayton, O.
Southwark Foundry & Machine Co., Philadelphia.
Wheeler, C. H., Condenser & Pump Co., Phila.

Pumps—Wind-Mill

Baltimore Cooperage Co., Baltimore, Md.
Cook Well Co., St. Louis.
Deming Co., Salem, O.
Des Moines Bridge & Iron Co., Des Moines, Ia.
Downie Pump Co., Downieville, Pa.
Fairbanks, Morse & Co., Chicago.
Flint & Walling Mfg. Co., Kendallville, Ind.
Otto Gas Engine Works, 360 Dearborn St., Chicago.
U. S. Wind Engine & Pump Co., Batavia, Ill.

Pyrometers—Electric

Bristol, Wm. H., New York.

Railings, Guards, Fences, Etc.

Albree Iron Works, Allegheny, Pa.
Attica Bridge Co., Attica, Ind.
Berlin (Ct.) Construction Co.
Belmont Iron Works, Philadelphia.
Boston Bridge Works, 47 Winter St., Boston.
Joliet Bridge & Iron Co., Joliet, Ill.
King Bridge Co., Cleveland, O.
Kratzer, W. N., & Co., Pittsburg.
New England Structural Co., Boston.
Schreiber, L., & Sons Co., Cincinnati, O.
Stewart Iron Works Co., Cincinnati, O.
Stupp Bros.' Bridge & Iron Co., St. Louis.

Rails

Atlantic Equipment Co., 111 Broadway, N. Y.
Dobbs, J. M., 17 Battery Place, New York.
Foster, L. B., Co., Pittsburg.
Hyde Bros. & Co., Pittsburg.
Koppel, Arthur, 66 Broad St., New York.
Oliver, Wm. J., Mfg. Co., Knoxville, Tenn.
Pennsylvania Steel Co., Philadelphia.
Richardson & Co., Pittsburg, Pa.
Robinson & Orr, Pittsburg, Pa.
Wiener, Ernst, Co., 66 Broad St., New York.
Wonham-Magor Engineering Co., New York.

Rail Joints, Fastenings, Etc.

Rail Joint Co., New York.

Rails—Second-Hand (see Second-Hand Supplies and For Sale Ads.)

Railway Track Specialties and Equipment

Abbott-Gamble Co., 620 Chestnut St., St. Louis.
Berger Mfg. Co., Canton, O.
Biome, R. S., Co., Chicago.
Climax Stock Guard Co., Chicago.
Elliott Frog & Switch Co., East St. Louis, Ill.
Fairbanks, Morse & Co., Chicago.
Hildreth & Co., Pittsburg, Pa.
Hunt, C. W., & Co., 45 Broadway, New York.
Indianapolis (Ind.) Switch & Frog Co.
Kalamazoo Railway Supply Co., Kalamazoo, Mich.
King Bridge Co., Cleveland, O.
New York Switch & Crossing Co., Hoboken, N. J.
Penna. Steel Co., Philadelphia.
Rail Joint Co., 27 W. 24th St., New York.
Railroad Supply Co., Bedford Bldg., Chicago.
Railway Steel-Spring Co., 71 Broadway, N. Y.
Ramapo Iron Works, Hillburn, N. Y.
Russell Wheel & Foundry Co., Detroit, Mich.
Weir Frog Co., Cincinnati, O.
Union Switch & Signal Co., Pittsburg, Pa.

Railways—Industrial and Narrow Gauge (see Cars and Locomotives)

Reinforced Concrete Construction. See Fireproof Construction

Rivets—Iron and Steel

King Bridge Co., Cleveland, O.
Mount Vernon Bridge Co., Mt. Vernon, O.
New England Structural Co., Boston.

Riveters (see Machine Tools)

Road Machinery, Road Rollers, Plows, Screens, Etc.

Acme Road Machinery Co., Frankfort, N. Y.
Advance Equipment Co., Philadelphia.
Allis-Chalmers Co., Milwaukee, Wis.
Austin Mfg. Co., Chicago.
Buffalo Steam Roller Co., Buffalo, N. Y.
Climax Road Machine Co., Marathon, N. Y.
Erie Machine Shops, Erie, Pa.
Good Roads Machinery Co., New York.
Iroquois Iron Works, Philadelphia, Pa.
Kelly-Springfield Road Roller Co., Springfield, O.
Pittsburg (Pa.) Industrial Iron Works.
Rodger Ballast Car Co., Chicago.
Scholl, Julian, & Co., 126 Liberty St., New York.
Vulcan Iron Works Co., Toledo, O.
Western Wheeled Scraper Co., Aurora, Ill.

Rolling Mill Machinery

Allis-Chalmers Co., Milwaukee, Wis.
Penna. Engineering Works, New Castle, Pa.
Poole Engineering & Machinery Co., Baltimore.
Tod, William, Co., Youngstown, O.
Variety Iron Works Co., Cleveland, O.
Wellman-Seaver-Morgan Co., Cleveland, O.

Roofing

Genasco Roofing Co., Philadelphia.
Sicilian Asphalt Paving Co., New York.

Roofing—Glass. See Skylights

Rope Fittings, Couplings and Cordage

American Mfg. Co., 65 Wall St., New York.
American Hoist & Derrick Co., St. Paul, Minn.
Broderick & Bascom Rope Co., St. Louis.
Lambert Hoisting Engine Co., Newark, N. J.
Leschen, A., & Sons Rope Co., St. Louis.
Roebling's, John A., Sons Co., Trenton, N. J.
Trenton Iron Co., Trenton, N. J.

Sand Blast Machines

Drucklieb, C., 132 Reade St., New York.

Saw Mill Machinery

Allis-Chalmers Co., Milwaukee, Wis.
Jeffrey Mfg. Co., Columbus, O.
Leschen, A., & Sons Rope Co., St. Louis.
Risdon-Alcott Turbine Co., Mount Holly, N. J.

Scales—Weighing (see Testing Machines)

Scrapers—Road. See Road Machinery

Schools and Colleges. See College and School Advertisements

Screens

Tyler, W. S., Co., Cleveland, O.

Second-Hand Supplies and Agents

Advance Equipment Co., Philadelphia.
Avery, Charles F., 45 Broadway, New York.
Braden, James S., 26 Cortlandt St., New York.
Briggs, Marvin, New York.
Carlin's, Thomas, Sons Co., Allegheny, Pa.
Carlin Mach. & Supply Co., Allegheny, Pa.
Chicago House-Wrecking Co., Chicago.
Cincinnati Equipment Co., Cincinnati, O.
Continental Car & Equipment Co., New York.
Contractors' Supply & Equip. Co., Chicago.
Dallett & Co., 201 Walnut Pl., Philadelphia.
Davis, M. E., New York.
Dobbs, J. M., 17 Battery Place, New York.
Foster Co., L. B., Pittsburg.
Harper Machinery Co., New York.
Males Co., 713 Traction Bldg., Cincinnati, O.
Pickett, H. W., House Bldg., Pittsburg, Pa.
Porter, N. B., 11 Broadway, New York.
Richardson & Co., Pittsburg, Pa.
Robinson & Orr, Pittsburg, Pa.
Sampson, G. H., Co., Boston, Mass.
Saxton, J. C., 18 Broadway, New York.
Shannon, J. J., & Co., Philadelphia.
Torbert, A. C., Co., Chicago.
Watson, Benjamin, 66 Beaver St., New York.
Wickes Bros., 137 Liberty St., New York.

Separators—Steam, Grease and Oil

American District Steam Co., Lockport, N. Y.
Bethlehem Fdy. & Machine Co., So. Bethlehem, Pa.
Coldwell-Wilcox Co., Newburgh, N. Y.
D'Este, Julian, Co., 24 Canal St., Boston.
Harrison Safety Boiler Works, Philadelphia.

Sewage and Garbage Disposal and Septic Tanks

Cameron Septic Tank Co., Chicago.
City Wastes Disposal Co., New York.
Cummings Structural Concrete Co., Pittsburg.
Edson Mfg. Co., 257 Atlantic Ave., Boston.
Lewis & Kitchen, Chicago.
Miller-Collins Co., New York.
Pacific Flush Tank Co., 184 La Salle St., Chicago.
Stump, Reidenbaugh & Packard, Marion, O.

Sewer Appliances and Specialties.

Blaw Collapsible Steel Centering Co., Pittsburg.
Bond, Harold L., 140 Pearl St., Boston.
Duplex Mfg. & Fdy. Co., Cleveland, O.
Loomis-Manning Filter Co., Philadelphia.
Pittsburg Filter Co., Pittsburg, Pa.
Steel Protected Concrete Co., Philadelphia, Pa.

Sheaves for Wire Rope, Hoisting

Allis-Chalmers Co., Milwaukee, Wis.
American Hoist & Derrick Co., St. Paul, Minn.
Boston & Lockport Block Co., Boston.
Byers, John L., Machine Co., Ravenna, O.
Caldwell, H. W., & Son Co., Chicago.
Caldwell, W. E., Co., Louisville, Ky.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Dobbie Fdy. & Machine Co., Niagara Falls, N. Y.
Patterson Co., W. W., Pittsburg, Pa.
Poole Engineering & Machine Co., Baltimore.
Rawson & Morrison Mfg. Co., Boston.
Taylor Iron & Steel Co., Highbridge, N. J.
Union Iron Works, Hoboken, N. J.
Vulcan Iron Works Co., Toledo, O.

Sheet Iron and Sheet Metal Work

American Sheet & Tin Plate Co., Pittsburg, Pa.
Enterprise Boiler Co., Youngstown, O.
Hodge Boiler Works, East Boston, Mass.
McNeil, Jas., & Bro. Co., Pittsburg, Pa.
Petroleum Iron Works Co., Washington, Pa.
Scaife, Wm. B., & Sons Co., Pittsburg, Pa.
Struthers, Wells & Co., Warren, Pa.
Union Iron Works, Hoboken, N. J.
Virginia Bridge & Iron Co., Roanoke, Va.

Shovels and Picks—Hand

Acme Road Machinery Co., Frankfort, N. Y.
Bond, Harold L., Co., 140 Pearl St., Boston.
Contractors' Supply & Equipment Co., Chicago.
Fairbanks, Morse & Co., Chicago.
Motley, Green & Co., 66 Broad St., New York.
Shannon, J. Jacob, & Co., Philadelphia.
Wyoming Shovel Works, Wyoming, Pa.

Shovels—Steam (see Dredging Machinery and For Sale Ads.)

Signaling Apparatus

Contractors' Plant Mfg. Co., Buffalo, N. Y.
Fairbanks, Morse & Co., Chicago.
General Electric Co., Schenectady, N. Y.
New York Switch & Crossing Co., Hoboken, N. J.
Ramapo Iron Works, Hillburn, N. Y.
Railroad Supply Co., Chicago.
Union Switch & Signal Co., Swissvale, Pa.

Skylights and Sidewalk Lights

Berger Mfg. Co., Canton, O.
Brooks, T. H., & Co., Cleveland, Ohio.
Drouve Co., The, Bridgeport, Conn.
Rendle, A. E., 428 11th Ave., New York.
Schreiber, L., & Sons Co., Cincinnati, O.
Translucent Fabric Co., Quincy, Mass.
Tucker & Vinton Corp., 156 Fifth Ave., New York.
Vaille & Young, Baltimore.

Stand Pipes and Tanks (see also Tanks and Towers)

Gem City Boiler Co., Dayton, O.
Kennicott Water Softening Co., Chicago.
Milwaukee Bridge Co., Milwaukee, Wis.
Otto Gas Engine Works, Chicago.
Riter-Conley Mfg. Co., 55 Water St., Pittsburg, Pa.
Tippett & Wood, Phillipsburg, N. J.
U. S. Wind Engine & Pump Co., Batavia, Ill.
Virginia Bridge & Iron Co., Roanoke, Va.

Steam Specialties

Bristol Co., Waterbury, Conn.
Clow & Sons, Jas. B., Chicago, Ill.
D'Este, Julian, Co., Boston, Mass.
DuVivier, Ernest H., 16 Church St., New York.
Fairbanks, Morse & Co., Chicago.
General Electric Co., Schenectady.
Lunkenheimer Co., Cincinnati, O.
Queen & Co., Philadelphia, Pa.
Power Specialty Co., 111 Broadway, New York.
Union Water Meter Co., Worcester, Mass.
Westinghouse Electric & Mfg. Co., Pittsburg.

Steel Structures (see Bridges)

Stock Guards

Climax Stock Guard Co., Chicago.

Stokers—Mechanical

Babcock & Wilcox Co., 85 Liberty St., New York.
Bartlett, C. O., & Snow Co., Cleveland, O.
Westinghouse Machine Co., Pittsburg.

Stone—Broken and Quarries

Bound Brook (N. J.) Crushed Stone Co.
Kelley Island Lime & Transport Co., Cleveland, O.
Leopold, J., & Co., 18 Broadway, New York.
McMullen, Arthur, Co., New York.
Tomkins, Calvin, 17 Battery Place, New York.

Strainers—Well

Cook Well Co., St. Louis, Mo.

Street Cleaning Implements, Machinery and Snow Plows

Acme Road Machinery Co., Frankfort, N. Y.
Austin Mfg. Co., Chicago.
Bond, Harold L., & Co., 140 Pearl St., Boston.
Good Roads Machinery Co., 136 Liberty St., N. Y.
Scholl, Julian, & Co., 126 Liberty St., New York.

Structural Work. See Bridges

Switch Stands and Switches. See Frogs

Tanks—Gas and Oil

Carroll-Porter Boiler & Tank Co., Pittsburg, Pa.
Chicago Bridge & Iron Works, Chicago.
Enterprise Boiler Co., Youngstown, O.
Graver, Wm., Tank Works, East Chicago, Ind.
Hammond Iron Works, Warren, Pa.
Petroleum Iron Works Co., Washington, Pa.
Reeves Bros. Co., Alliance, O.
Sharon Boiler Works, Sharon, Pa.
Tippett & Wood, Phillipsburg, N. J.

Tanks—Grain and Storage

Berquist, A. S., 515 Bedford Ave., Brooklyn, N. Y.
Bethlehem Fdy. & Machine Co., So. Bethlehem, Pa.
Browning Engineering Co., Cleveland, O.
Caldwell, W. E., Co., Louisville, Ky.
Chicago Bridge & Iron Works, Chicago.
Minneapolis Steel & Mach. Co., Minneapolis, Minn.
Petroleum Iron Works Co., Washington, Pa.
Reeves Bros. Co., Alliance, O.
Riter-Conley Mfg. Co., 55 Water St., Pittsburg, Pa.
Steel Storage Elevator & Construction Co., Buffalo.
Tippett & Wood, Phillipsburg, N. J.
United Concrete Mach'y Co., Flatiron Bldg., N. Y.
Warren City Tank & Boiler Works, Warren, Ohio.
Wood, R. D., & Co., Philadelphia.

Tanks—Septic. See Sewage Disposal

Tanks and Towers

Aermotor Co., Chicago.
American Creosote Works, New Orleans, La.
Baltimore Cooperage Co., Baltimore, Md.
Burkhardt's, Geo. J., Sons, Philadelphia.
Caldwell, W. E., Co., Louisville, Ky.
Davis, Geo. M., & Son, Palatka, Fla.
Des Moines Bridge & Iron Works, Des Moines, Ia.
Fairbanks, Morse & Co., Chicago.
Kalamazoo (Mich.) Ry. Supply Co.
National Wood Pipe Co., Los Angeles, Cal.
Phillips & Worthington, 136 Liberty St., New York.
Snow, T. W., 360 Dearborn St., Chicago.
U. S. Wind Engine & Pump Co., Batavia, Ill.

Tapes—Steel (see Draftsmen's Supplies and Instruments)

Tents and Awnings

Murray Co., 59 W. Washington St., Chicago.

Testing Machines and Scales

Fairbanks, Morse & Co., Chicago.
Riehle Bros. Testing Machine Co., Philadelphia.
Richardson Scale Co., New York.
Ulmer, J. C., & Co., 224 Champlain St., Cleveland.

Ties—Steel and Wood. See Railway Track Specialties

Tiles—Roofing

Ludowici-Celadon Co., Chicago.

Tipples and Bunkers

Allis-Chalmers Co., Milwaukee, Wis.
Berquist, A. S., 515 Bedford Ave., Brooklyn, N. Y.
Exeter Machine Works, Pittston, Pa.
Link-Belt Engineering Co., Philadelphia, Pa.
Mount Vernon Bridge Co., Mt. Vernon, O.
Pennsylvania Steel Co., Philadelphia.
Penn Bridge Co., Beaver Falls, Pa.
Scaife, Wm. B., & Sons Co., Pittsburg, Pa.
Wellman-Seaver-Morgan Co., Cleveland, O.

Tools—Caulking

Dallett, Thos. H., & Co., Philadelphia.
Ingersoll-Rand Co., 11 Broadway, New York.
Smith, A. P., Mfg. Co., Newark, N. J.

Track—Portable (see Railway Track Specialties

Transportation Companies

Atlantic Coast Line, Wilmington, N. C.
Chicago & Alton R. R., Chicago.
Chicago & Northwestern Ry., Chicago.
Clyde S. S. Line, New York.
D., L. & W. R. R. Co., New York.
Erie R. R. Co., New York.
Illinois Central Ry., Chicago.
Long Island R. R., New York.
Munson S. S. Line (Cuba), New York.
Northern Pacific Ry., Chicago.
N. Y. C. & H. R. R. Co., New York.

Trench Brace Machines

Duff Mfg. Co., Pittsburg, Pa.
Kalamazoo (Mich.) Foundry & Machine Co.

Trench Machines and Supplies (see Ditching Machinery)

Trucks—Foundry and Warehouse

Boston & Lockport Block Co., Boston.
Kilbourne & Jacobs Mfg. Co., Columbus, O.
Northern Engineering Works, Detroit, Mich.
Koppel, Arthur, 66 Broad St., New York.
Mechanical Mfg. Co., Chicago.
Syracuse Chilled Plow Co., Syracuse, N. Y.

Turbines—Steam

Allis-Chalmers Co., Milwaukee, Wis.
Backus Water Motor Co., Newark, N. J.
De Laval Steam Turbine Co., Trenton, N. J.
Morris, I. P., Co., Philadelphia.
General Electric Co., Schenectady, N. Y.
Westinghouse Electric & Mfg. Co., Pittsburg, Pa.
Worthington, Henry R., 118 Liberty St., N. Y.

Turbines—Water

Abner-Doble Co., 200 Fremont St., San Francisco.
Allis-Chalmers Co., Milwaukee, Wis.
Dayton Globe Iron Works Co., Dayton, O.
Leffel, Jas., & Co., Springfield, O.
Morris, I. P., Co., Philadelphia.
Pelton Water Wheel Co., San Francisco.
Risdon-Alcott Turbine Co., Mount Holly, N. J.
Smith, S. Morgan, Co., York, Pa.
Wellman-Seaver-Morgan Co., Cleveland, O.

Turnbuckles

Broderick & Bascom Rope Co., St. Louis, Mo.
Cleveland City Forge & Iron Co., Cleveland, O
Cowing Engineering Co., Cleveland, O.
Janney, Steinmetz & Co., Philadelphia.
Leschen, A., & Sons Rope Co., St. Louis.
Merrill Bros., Kent Ave., Brooklyn, N. Y.
New Jersey Foundry & Machine Co., New York.
Toledo-Massillon Bridge Co., Toledo, O.

Turntables

American Bridge Co., 42 Broadway, New York.
Baltimore Bridge Co., Baltimore.
Boston Bridge Works, 47 Winter St., Boston.
Brown Hoisting Machinery Co., Cleveland, O.
Coldwell-Wilcox Co., Newburgh, N. Y.
Hunt, C. W., Co., 45 Broadway, New York.
King Bridge Co., Cleveland, O.
Koppel, Arthur, 66 Broad St., New York.
Link-Belt Engineering Co., Nicetown, Philadelphia.
Minneapolis Steel & Mach. Co., Minneapolis, Minn.
Mo. Valley Bridge & Iron Wks., Leavenworth, Kan.
Mount Vernon Bridge Works, Mount Vernon, O.
New England Structural Co., Boston.
Northern Engineering Works, Detroit, Mich.
Passaic Steel Co., Paterson, N. J.
Pennsylvania Steel Co., Philadelphia.
Phoenix Bridge Co., 410 Walnut St., Phila.
Shoemaker, Lewis F., & Co., Philadelphia.
Strobel Steel Construction Co., Chicago.
Vulcan Iron Works, 47 Milwaukee Ave., Chicago.
Wiener, Ernst, Co., 66 Broad St., New York.
Wonham-Magor Engineering Co., New York.

Valves and Valve Boxes

Abner-Doble Co., 200 Fremont St., San Francisco.
Bourbon Copper & Brass Works, Cincinnati, O.
Chapman Valve Mfg. Co., Indian Orchard, Mass.
Clow, James B., & Sons, Chicago.
Coffin Valve Co., Boston.
Coldwell-Wilcox Co., Newburgh, N. Y.
Darling Pump & Mfg. Co., Williamsport, Pa.
Dimmick Pipe Co., Birmingham, Ala.
Drummond, M. J., & Co., New York.
Fairbanks, Morse & Co., Chicago.
Foster Engineering Co., Newark, N. J.
Fox, John, & Co., 253 Broadway, New York.
Kennedy Valve Mfg. Co., 50 Beekman St., N. Y.
Lunkenheimer Co., Cincinnati, O.
McGowan, John H., Co., Cincinnati, O.
McLean, John, 440 Water St., New York.
Pittsburg Mfg. Co., 28th St., Pittsburg, Pa.
Ross Valve Co., Troy, N. Y.
Simplex Valve & Meter Co., Philadelphia.
Smith, A. P., Mfg. Co., Newark, N. J.
Union Hydraulic Works, Philadelphia.
Union Water Meter Co., Worcester, Mass.
Wellman-Seaver-Morgan Co., Cleveland, O.
Wood, R. D., & Co., Philadelphia.

Ventilating Apparatus, Blowers and Bellows

American Blower Co., Detroit, Mich.
American Gas Furnace Co., New York.
Berger Mfg. Co., Canton, O.
Buffalo Forge Co., Buffalo, N. Y.
Drouve Co., The, Bridgeport, Conn.
Green Fuel Economizer Co., Matteawan, N. Y.
N. Y. Blower Co., Chicago, Ill.
Power Specialty Co., New York.
Rendle, Arthur E., New York.
Sprague Electric Co., New York.
Stump, Reidenbaugh & Packard, Marion, O.
Sturtevant, B. F., Co., Hyde Park, Mass.

Wagons—Dump. See Carts

Water Power Plants and Equipment

Caldwell, W. E., Co., Louisville, Ky.
Leffel, James, & Co., Springfield, O.
Gilbreth, F. B., 34 West 26th St., New York.
Municipal Engineering & Contracting Co., Chicago.
National Wood Pipe Co., Los Angeles, Cal.
Otto Gas Engine Works, 360 Dearborn St., Chicago.
Poole Engineering & Machine Co., Baltimore.
Risdon-Alcott Turbine Co., Mount Holly, N. J.
Wellman-Seaver-Morgan Co., Cleveland, O.

Waterproofing (see Asphalt and Paint)

Water Softening Plant and Water Purification and Filters

Am. Water Softener Co., 1011 Chestnut St., Phila.
Cummings Filter Co., Pittsburg, Pa.
Deutsch, Wm. M., 141 Broadway, New York.
Greer Filter Co., Philadelphia.
Harrison Safety Boiler Works, Philadelphia.
Helwig Mfg. Co., St. Paul, Minn.
Kennicott Water Softening Co., Chicago.
Loomis-Manning Filter Co., Philadelphia.
N. Y. Continental Jewell Filtration Co., New York.
Philadelphia Water Purification Co., Philadelphia.
Pittsburg Filter Mfg. Co., Pittsburg, Pa.
Roberts Mfg. Co., Philadelphia.
Scaife, Wm. B., & Sons Co., Pittsburg, Pa.
Stump, Reidenbaugh & Packard, Marion, O.
U. S. Wind Engine & Pump Co., Batavia, Ill.

Well Drilling. See Artesian Wells

Wheelbarrows — Iron, Steel and Wood Plows, Etc.

Acme Road Machinery Co., Frankfort, N. Y.
Cockburn Barrow & Machine Co., Jersey City, N. J.
Kilbourne & Jacobs Mfg. Co., Columbus, O.
Ransome Concrete Machinery Co., New York.
Shannon, J. Jacob, & Co., Philadelphia.
Sterling Wheelbarrow Co., Milwaukee, Wis.
Stuebner, G. L., Iron Works, L. I. City, N. Y.
Syracuse Chilled Plow Co., Syracuse, N. Y.
Union Iron Works, Hoboken, N. J.
United Concrete Mach'y Co., Flatiron Bldg., N. Y.
Western Wheeled Scraper Co., Aurora, Ill.

Windmills. See Pumps—Windmill

Wire Rope and Aerial Tramways. See Cableways

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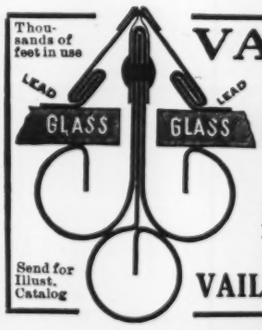

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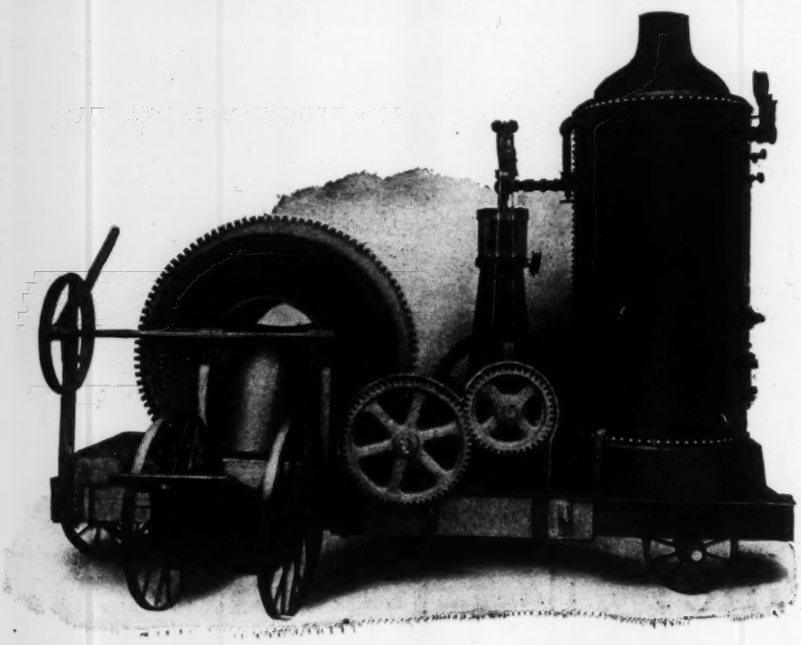

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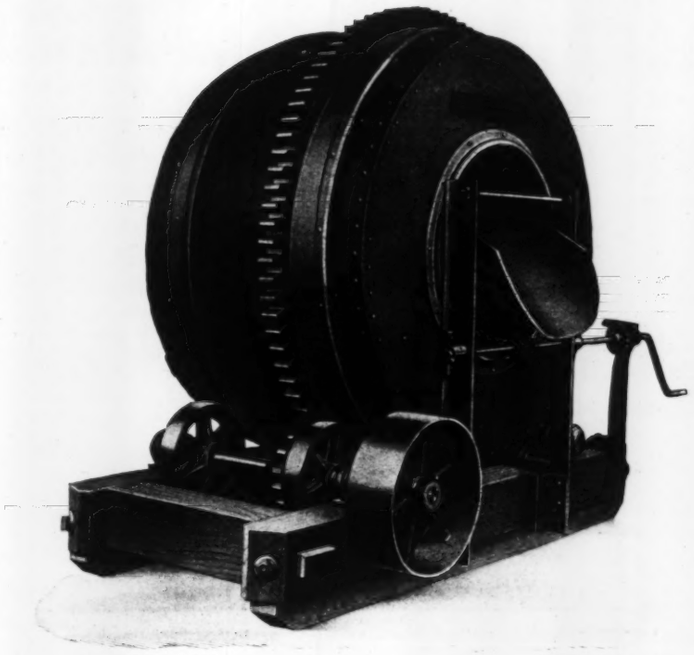
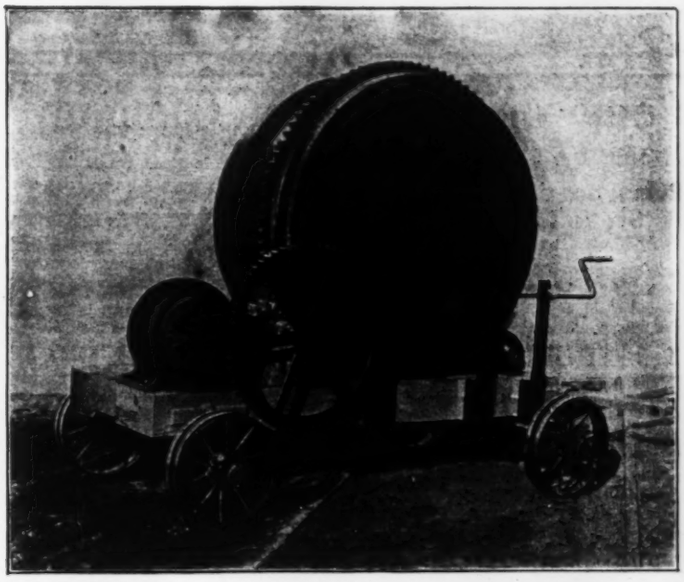


Gotham Mixer with Pulley for Belt Drive.



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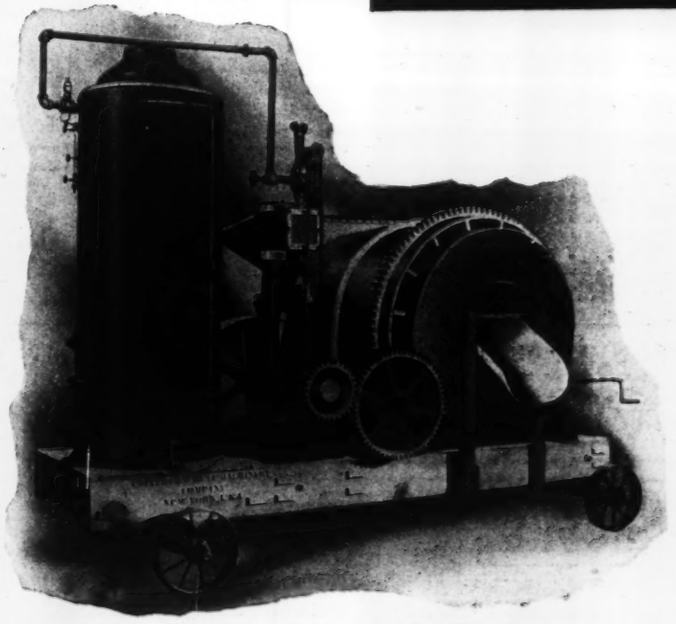
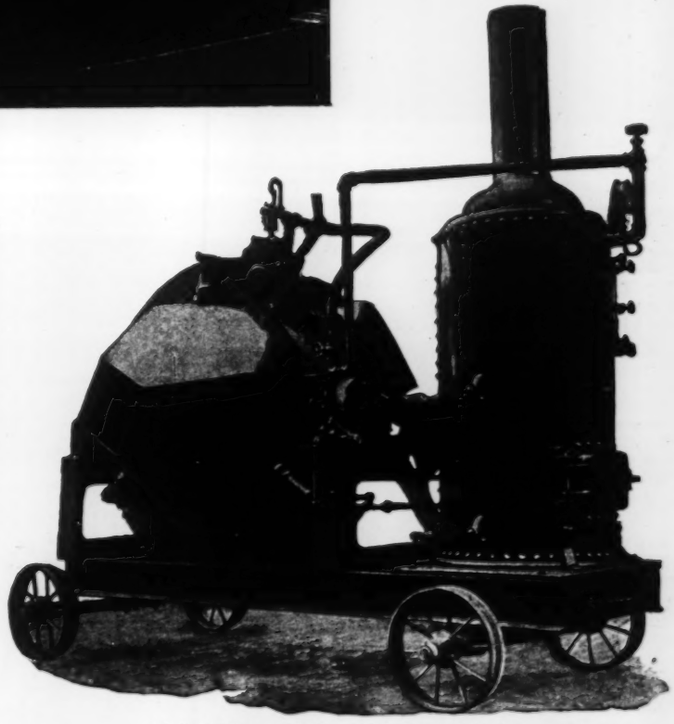


Gotham Mixer with Steam Engine and Boiler.



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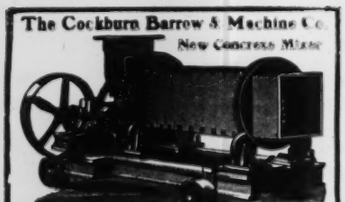

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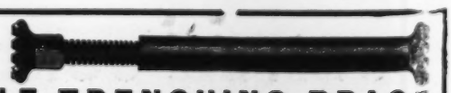
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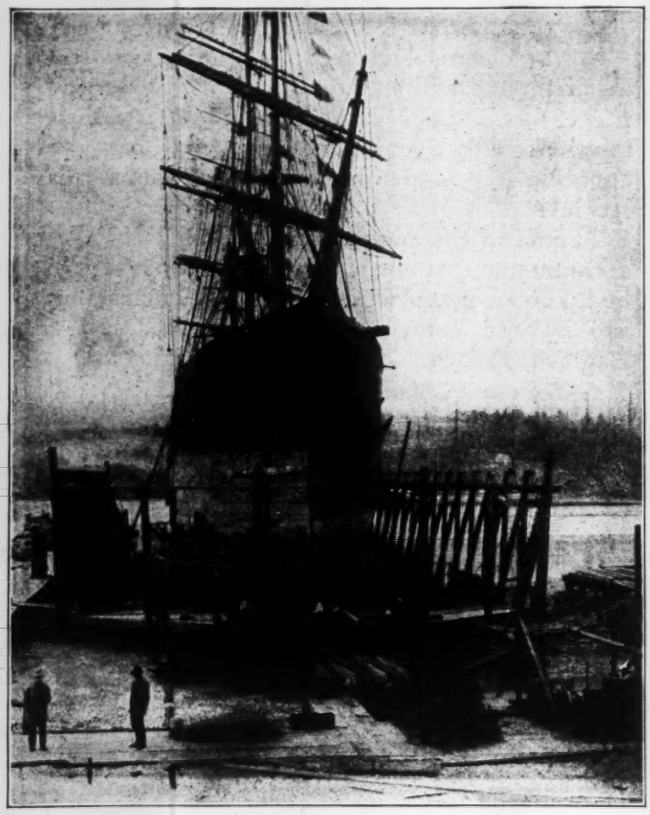

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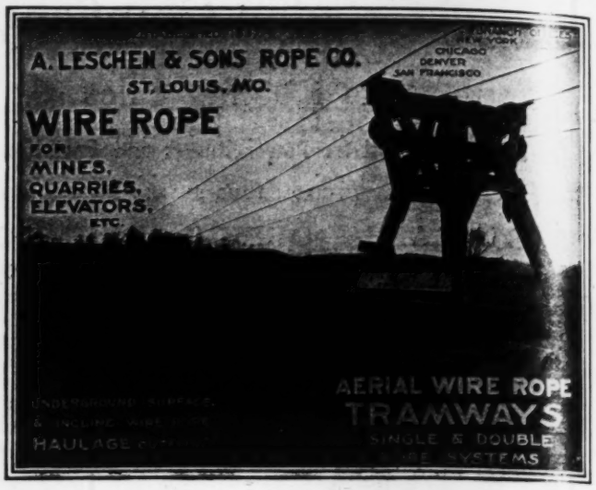

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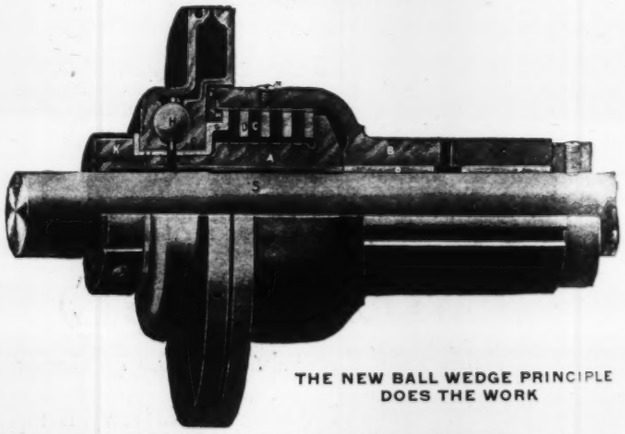

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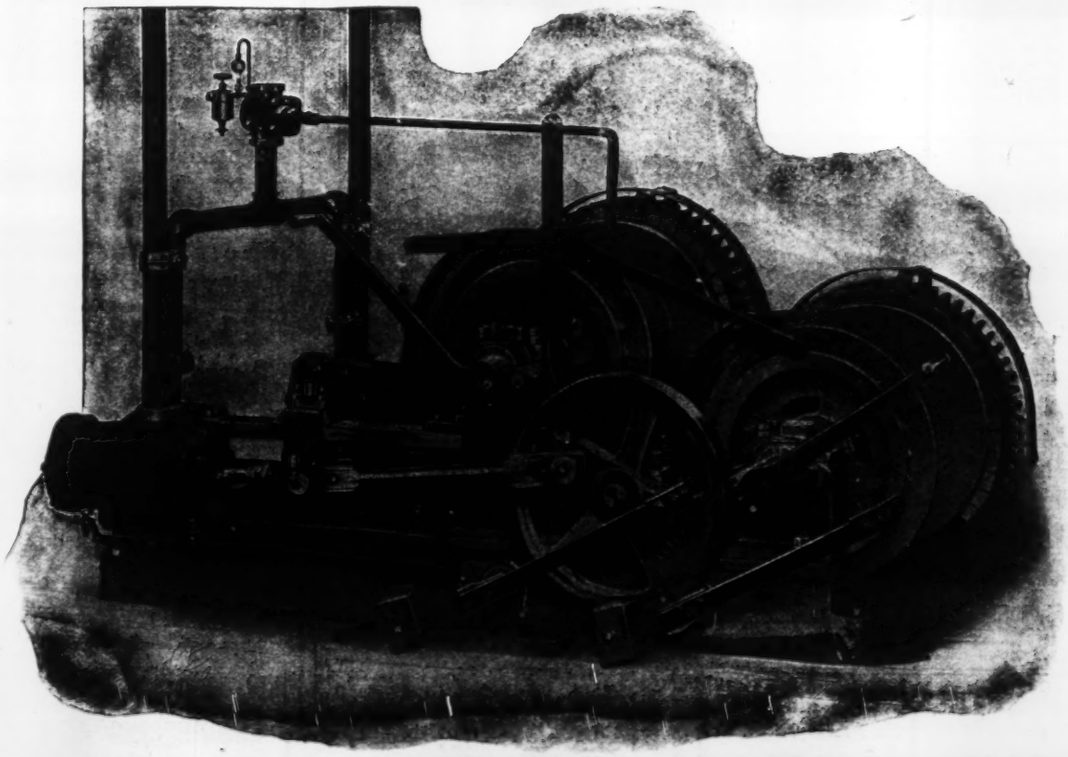

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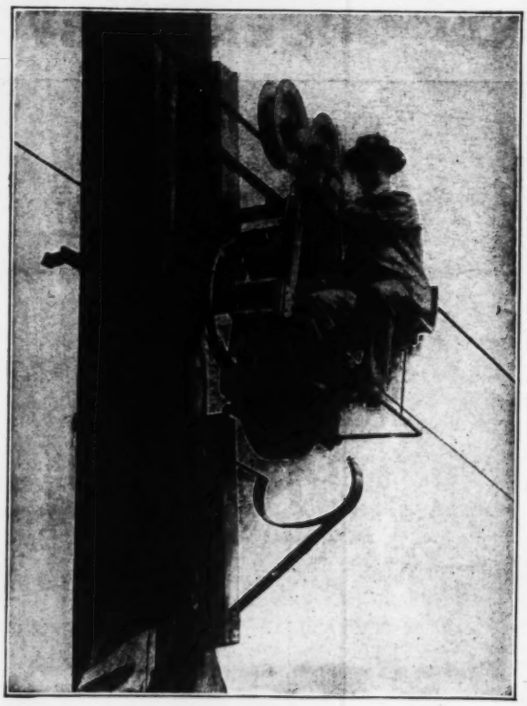

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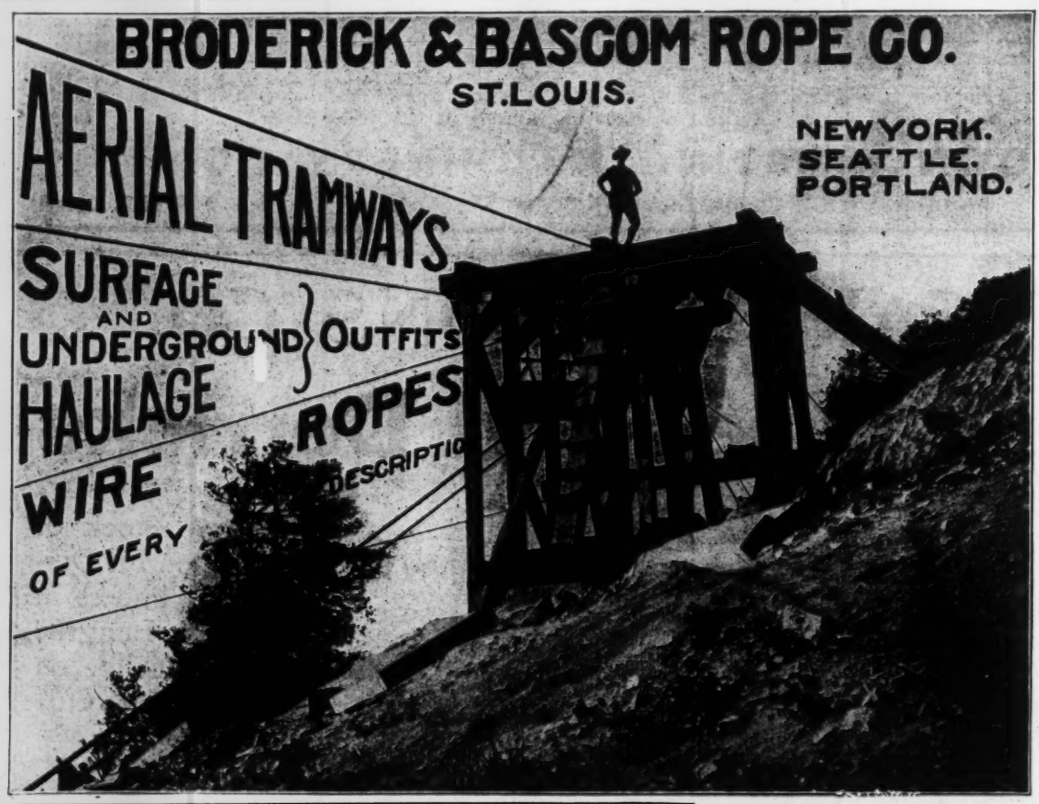

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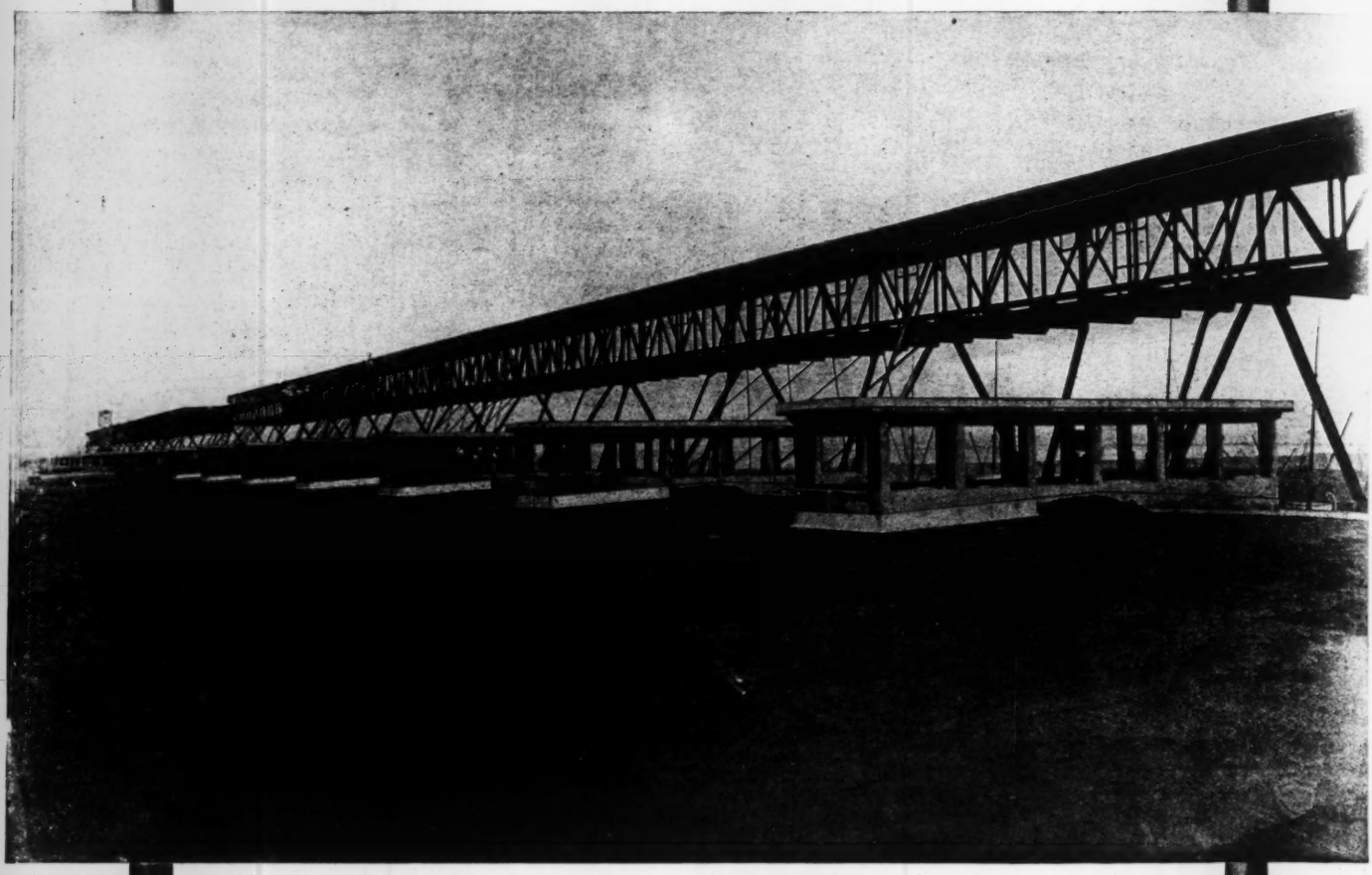

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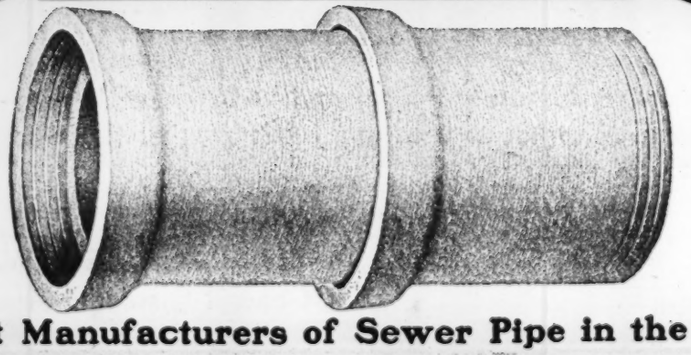

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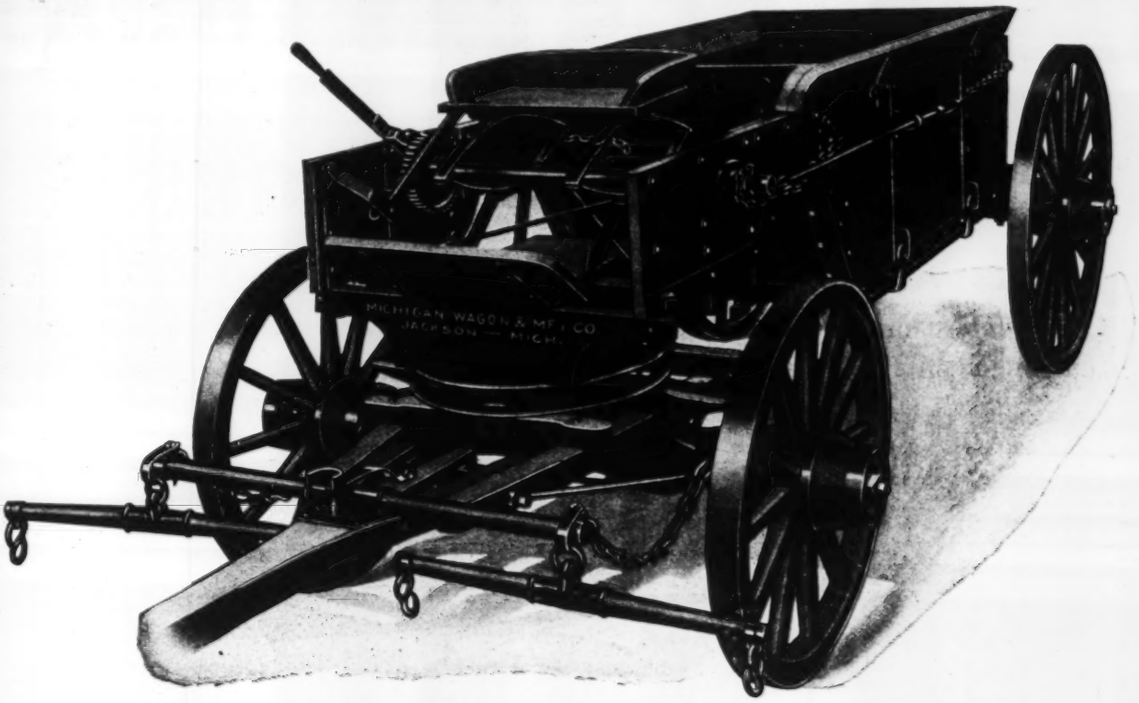

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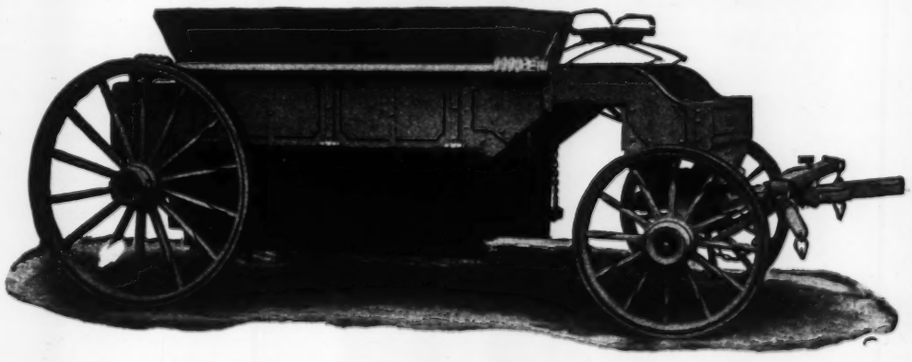

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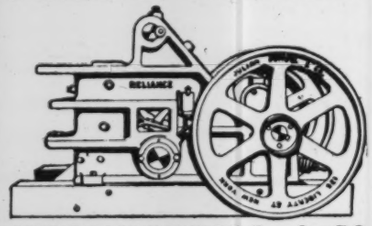

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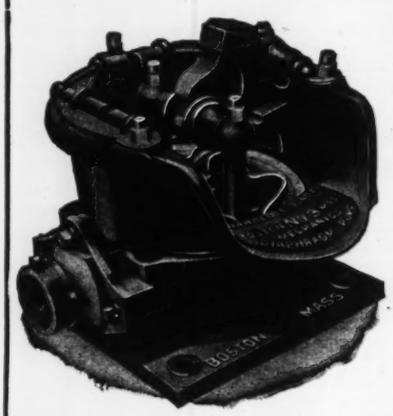

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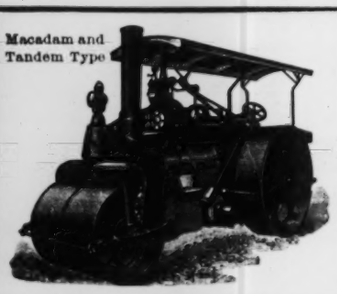

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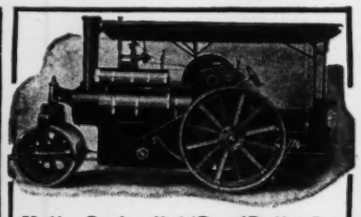

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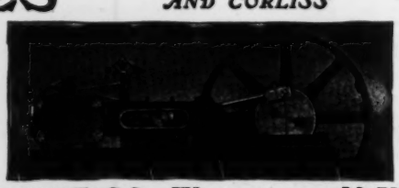

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Knowles Steam Pump Works. 10
Kolesch & Co. 23
Koppel, Arthur Co. 44
Kosmos Portland Cement Co. 71
Kratzer, W N, & Co. 77
Kupferle, J C. 13
Kurtz, Langbein & Swartz. 24
Lacledo Fire Brick Mfg Co. 74
Ladd, Jas B. 37
Lafayette College. 34b
Laidlaw-Dunn-Gordon Co. 20
Lambert Hoisting Engine Co. 63
Lamson Con S S Co. 20
Lathbury, B B. 37
Lawrence Cement Co. 84
Lawrence Pump & Engine Co 4
Lawrence, T J. 37
Leadite Co. 11
Ledder, G G. 25
Leffel, Jas, & Co. 6
Lehigh Car Wheel & Axle Wks 72
Lehigh Engineering Co. 37
Lehigh Portland Cement Co. 1
Lehigh University. 34b
Lehigh Valley Test Lab. 37
Leopold, J. & Co. 77
Leschen, A, & Sons Rope Co. 34b
Leverette & Garrigues Co. 81
Lewis Institute 34b
Lewis & Kitchen. *34
Lidgerwood Mfg Co. 63
Lietz, A, Co. 24
Lima Loco & Mach Works. 48
Linz Belt Engineering Co. 61,64
Lock Joint Pipe Co. 35
Loco & Mach Co of Mont. 81
Lombard Governor Co. *6
Long Island R R. 35
Loomis Manning Filter Co. 1
Lucius, Albert. 37
Ludlow, J L. 37
Ludowici Celadon Co. 34a
Lufkin Rule Co. 24
Lunkenheimer Co. 8
Luther, J P, Glove Co. *34a
Lynchburg Fdy Co. 16
Mack Mfg Co. 74
Maclay, W W. 36
Macomb Sewer Pipe Co. 1
Mahn & Co. 25
Main Belting Co. 34b
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Manecse, M M. 37
Manhattan College. 24b
Marine Eng & Mach Co. 4
Marion Steam Shovel Co. 69
Markmann-Tyrell. 36
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Marquette Port Cement Co. 84
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Mason, W P. 37
Massillon Iron & Steel Co. 17
Mauer, Henry, & Son. 39
Maury, Dabney H. 36
Mayer, Joseph. 37
McAvoy Vitrified Brick Co. 73
McClintic-Marshall Const Co. 80
McClintock, John. 36
McConway & Torley Co. 48
McCord & Co. 7
McGowan, John H, Co. *57
McKelvey Concrete Mach Co 60
McKiernan Drill Co. 22
McLean, John. 16
McMullen, Arthur, & Co. 34
McMyler Mfg Co. 69
Meade, James, & Bro. 15
McWane Pipe Works. 18
Meacham & Wright. 72
Mead-Morrison Mfg. 64
Mechanical Mfg Co. 46
Meehan Boiler & Const Co. 17
Melville & Macalpine. 37
Menschi, L J *27
Meredith Cedar Co, J P. 36
Merrill Bros. 50
Mietz & Weiss. 7
Michigan College of Mines 34b
Michigan Wagon & Mfg Co. 34b
Millar, Chas, & Son Co. 51
Miller, Collins Co. 34
Miller & Co, H C. *75
Milne Mfg Co. †38
Milwaukee Bridge Co. 80
Mineral Ridge Mfg Co. 68
Minneapolis Steel & Mchy Co *30
Mississippi Wire Glass Co. 50
Mo Valley Bridge & Iron Co. 80
Modern Mexico. †13
Modern Tool Co. 10
Monmouth Mining & Mfg Co. 1
Monolith Steel Co. 75
Monongahela Mfg Co. 66
Moore & Co, Chas C. 8
Moore, C E. 36
Moore, L C. 37
Morava Construction Co. 72
Moreno, O A. 36
Morris Co, I P. 4
Morris Machine Works. 8
Morse, A J, & Son. 70
Morse, W F 37
Motley Green & Co. 45
Mount Vernon Bridge Co. 79
Mundy, S. 37
Municipal Eng & Con Co. 50,58,59
Murray Co. 52
National Fireproofing Co. 75
National Hoisting Eng Co. 65
National Meter Co. 19
National Paint Works. 1
National Fvg Brick Mfrs Assn 75
National Powder Co. *35
National Wood Pipe Co. 16
Naughton Co. 34
Neptune Meter Co. *18
Newhall, J B. 37
Newman's Akron Cement Co. 75
Newman, Wm A. 36
New England Steam Brick Co 82
New England Structural Co. 82
New Era Gas Engine Co. 6
N J Central. 43
N J Foundry & Machine Co. †64
New Orleans Wood Pres Wks 67
N Y Blower Co. *
N Y Central. 34b
N Y Cont Jewell Filtration Co 84
N Y Engineering Agency. 40
N Y Purchasing Agency. 35
N Y Switch & Crossing Co. 48
N Y Univ Sch of App Science 34b
Niagara Tach & Const Co. 84
Norfolk Crushing Co. 67
North Am Dredging Co. 70
North American Metaline Co. 46
Northampton Port Cem Co. 76
Northern Engineering Wks. 67
Northern Pacific R R. 34e
North Penn Iron Co. 34d
Northwestern Tile Co. 61
Norwalk Iron Works Co. 22
Norwich University. 26c
Norwood Engineering Co. 18
Olds Gasoline Engine Works. *7
Oliver Mfg Co. 65
Olmsted, F H, Eng Co. 37
Orford Copper Co. 37
O'Rourke Eng & Const Co. 34
Osgood Dredge Co. 68
Ostrom, John N. 29
Otto Gas Engine Works. *13
Ottumwa Bridge Co. 79
Owen, James. 36
Pacific Tank Co. 52
Page & Shnable. 52
Palmer Block Co, H S. 89
Palmer, W K. 38
Parker Boiler Co. 9
Passaic Steel Co. 82
Patterson, J W. 78
Pawling & Harnischfeger. 65
Pels & Co, Henry. 9
Pelton Water Wheel Co. 6
Penn-Allen Cement Co. 71
Penn Bridge Co. 80
Pennsylvania Cement Co. 84
Pennsylvania Eng Works 9
Penn Military College. 26b
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Petroleum Iron Works Co. 14
Pettyjohn Co. 44-77
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Phillips & Worthington. *34
Phoenix Bridge Co. 81
Pierce, Geo S. 36
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Pitometer Co. 51
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Pittsburgh Mfg Co. 17
Pittsburgh Meter Co. 18
Pittsburg Pipe & Iron Co. 44
Pittsburg Reduction Co. 50
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Pittsburgh Test Lab Ltd. 37
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Poole Eng & Machine Co. 5
Porter, H K, Co. 48
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Railway Steel Spring Co. 1
Ramapo Iron Works. 47
Randolph, L S. 37
Ransome Concrete Mach Co. 52
Raymond Bros. Imp Pulv Co. 75
Raymond Pile Co. 77
Raymond, W G. 36
Reeves Brothers Co. 17
Reid-Turnbull Con Co. 77
Rendle Arthur E. 31
Rensselaer Institute. 34b
Replogle Gov Wks. 50
Richards, Paston. 34d
Richardson & Co. *44
Richardson Scale Co. *59
Riehle Bros Test & Mach Co. 13
Riggs & Sherman Co. 37
Rinald Bros. 1
Risdon-Alcott Turbine Co. 5
Risdon Iron Works. 69
Riter-Conley Mfg Co. 8
Riverside Bridge Co. 82
Robbins, F A. 37
Roberts & Abbott Co. 6
Roberts Mfg Co. 53
Robins Conveying Belt Co. 63
Robinson, A W. 37
Robinson & Dyr. 44
Rockwood Mfg Co. 53
Rodger Ballast Car Co. 70
Roebling Construction Co. 42
Roebling, John A, Sons Co. 34e
Rogers, John M, Drill Works. 22
Rogers, Ransome 36
Rose Polytechnic Institute. 34b
Ross Valve Co. 18
Ross & Hodge. 37
Ruenis, E G, & Co. *24
Ruggles-Coles Eng Co. 71
Russell, S Bent. 36
Russell Wheel & Foundry Co. *47
Safety Car Heat & Light Co. 48
Sampson Co, Geo H. 22
Sanderson Port Cement Co. 6
San Francisco Bridge Co. 79
San Francisco Tim Pres Co. 67
Saunders', D, Sons. 15
Saxton, J O. 36
Scaife, Wm B, & Sons Co. 79
Scherzer Rol Lift Bdge Co. 79
Scholl, Julian, & Co. 53
School of Structural Drafting 40
Schrader's Son, A. 70
Schreiber, L, & Sons Co. 81
Schwencke, Kirk & Co. 31
Scientific American. —
Scott Mfg Co. 74
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Shanklin, J C & R M. 5
Shannon, J Jacob, & Co. †42
Sharon Boiler Works. 18
Shawmut Brick Works. 77
Sheffield School of Yale. 34b
Shepherd Engineering Co. 4
Shoemaker, Louis F. & Co. 80
Sheiliah Asphalt Paving Co. 31
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Simplex Valve & Meter Co. 18
Simplex Concrete Piling Co. 6
Simpson Bros Corporation. 79
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Smith, Anthony P, Mfg Co. 17
Smith & Davis. 37
Smith & Co, Edward. 1
Smith, S Morgan Co. 5
Snare & Triest. 80
Snow Steam Pump Works. 10
Snow, T W (Otto Gas Eng). 8
Snow & Barbour. 37
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Sooysmith, Charles. 37
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Sprague Electric Co. 22
Springfield Gas Engine Co. 6
Stackpole & Brother. 22
Standard Brick Machinery Co 74
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Standard Paint Co. 58
Standard Roller Bearing Co. —
Starrett, L S, Co. *24
Star Drilling Machine Co. 20
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State University of Iowa. 34b
Steel Protected Concrete Co. *77
Steel Storage & Elev Con Co. 77
Sterling Varnish Co. 39
Sterling Wheelbarrow Co. 60
Steward & Romaine Mfg Co. 67
Stewart Iron Works Co. 38
St Louis Portland Cement Co 71
St Marys Sewer Pipe Co. 1
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Stow Flexible Shaft Co. 32
Stow Mfg Co. 33
Straley & Hasbrouck *51
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Thayer, W C 36
Thew Automatic Shovel Co. 69
Thompson & Sons Mfg Co. 12
Thomson, T Keunard. 37
Thomson Meter Co. 18
Thorn Cement Co. 73
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Toledo Foundry & Mach Co. 70
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Torbert, A C, & Co. 41, 42
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Ulmer, J C, & Co *31
Underwood Co, H B. 77
Underwriters Eng & Con Co. 77
Union Hydraulic Works. *16
Union Iron Works. 65
Union Switch & Signal Co. † 38
Unit Con. Steel Frame Co. *6
United Concrete Mchy Co. 33
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U S Cast Iron Pipe & Fdy Co. 15
U S Drying Engineering Co. *71
U S Mineral Wool Co. 1
U S Press Clipping Bureau. *13
U S Steel Piling Co. 49
U S Wind Engine & Pump Co 12
U S Wood Preserving Co. *40
Upton, Wm B. 36
Utah State School of Mines. 34b
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Variety Iron Works Co. 81
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Vulcan Iron Wks (Chicago). 81
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Webster Engineering Co. 37
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Weinman Machine Works. *6
Weir Frog Co. 48
Weitman-Seasongood Morg Eng Co 36
Wells Light Mfg Co. 1, 10, 15
Westcott Co, G F. 36
Western Cement Co. 71
Western University of Penn. 34b
Western Wheeled Scraper Co. 52
Westinghouse Air Brake Co. 83
Westinghouse Elec & Mfg Co. 2
Weston, E B. 37
West Pascagoula Creo Wks. 67
Wheeler Mfg Co. 10
White Co, J G. 37-34e
Whitney, O R. 44
Wickes Bros. 22
Wiedenbach, F. 36
Wiener, Ernst. 45
Wight, W N, & Co. 78
Wilcox Co, W H. 60
Wiley, John, & Sons. 50
Wilkins Eng Co, Wm G. 37
Williams, Brown & Earle. †24
Williams, J F. 33
Williams, Proctor & Potts. 37
Williamson Bros Co. 62
Williamsport Wire Rope Co. 60
Wilson & Alber. 37
Wilson, Harris & Richards. 37
Wisconsin Bridge & Iron Co. 80
Wise & Watson. 36
Wittstock, P & B. 25
Wonham-Magor Eng Co. 65
Wood, R D, & Co. 11
Worcester Polytechnic Inst. 34b
Worthington, Henry R. †26c
Wyckoff Pipe & Creo Co. 67
Wyckoff Wood Pipe Co. 17
Wyoming Shovel Co. 51
Yale & Towne Mfg Co. 67
Yale University. 34b
York Bridge Co. 82
Young, W W. 37
Young & Sons. 25
Youngstown Car Mfg Co. 48
Youngstown Ir & St Roof Co 79
Zalnicker, Walter. 37
Zook, M A 36

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MECHANICAL ENGINEER, technical graduate, 3 years' experience in construction and structural work, wants position; Philadelphia or New York preferred. Address "O. B. 23," Engineering News, New York. 23-4t

MECHANICAL and structural engineer, age 31, technical graduate, desires responsible position; nine years' experience, structural work, elevating and conveying machinery, power plants, as designer, checker, and in charge of division. Address "D. 15," Engineering News, New York. 15-12t

MECHANICAL ENGINEER (30), with good knowledge of men, general engineering, executive and some business experience, having high sense of responsibility, open for engagement. Address "A. 21," Engineering News, New York. 26-12t

Civil Engineers.

HIGH-CLASS engineer, graduate, M. Am. Soc. C. E., is open to engagement (long or short time); expert railway work a specialty (steam or electric), location, construction, reconnaissance, reports, estimates, superintendence; 20 years' experience; highest references; conference solicited. Address "P. A. 18," Engineering News, New York. 18-12t

COLLEGE GRADUATE ENGINEER of 25 years' practical experience desires a change; large experience in reconnaissance, location and construction of railways and other enterprises, with necessary reports and estimates; served as chief engineer; excellent references. Address "Z. A. 18," Engineering News, New York. 18-12t

CIVIL ENGINEER, eight years' experience, wants evening work, drawings, estimates, computation, designs, railroad work concrete and concrete steel, foundati... Address "S. 23," Engineering N... New York. 23-12t

CIVIL ENGINEER, gradu... A. C. S., desires position as assis...ant to engineer of contracting or R. R. company or in drafting room of bridge company Address "X. A. 19," Engineering News, New York. 23-6t

ENGINEER, 14 years' experience, sewers, water-works, property surveys, subdivisions, railroad resurvey and right-of-way work; 6 years on track elevation and tunnels, including subaqueous; some architectural experience, twice chief draftsman, now employed as assistant engineer with salary of $150; location desired East. Address "R. A. 23," Engineering News, New York. 23-12t

CIVIL ENGINEER AND DRAFTSMAN, technical graduate, 32 years old and married, will complete present engagement in the near future, wishes to correspond with parties needing experienced man; 10 years' experience, including surveys, field and office work on construction; have filled positions of chief draftsman, resident engineer and assistant to chief engineer; A No. 1 references as to character and ability. Address "L. A. 24," Engineering News, New York. 24-6t

TECHNICAL GRADUATE, 7 years' experience construction railroads, bridges, buildings, sewers, manufacturing plants, locks and dams; also office management, time and cost systems, etc.; 4 years as contractors' engineer and assistant superintendent, wishes position. Address "K. A. 24," Engineering News, New York. 24-12t

CIVIL ENGINEER, college graduate, with nine years' experience on construction of railroads and water-works, at present employed in South, will be at liberty July 7th; salary, $135. Address "C. B. 24," Engineering News, New York. 24-3t

CIVIL ENGINEER, now employed, desiring to change for higher salary and enlarged opportunities, will send his professional record and references to parties seeking the services of a capable engineer and man of character; technical graduate; Assoc. M. Am. Soc. C. E.; age 31. 12 years' experience; position must last at least 18 months; salary $200 per month. Address "A. 20," Engineering News, New York. 24-3t

RESIDENT OR ASSISTANT ENGINEER wishes position; nine years' experience in construction and general engineering, including railroads and water-works. Address "D. 21," Engineering News, New York. 24-3t

YOUNG CIVIL ENGINEER, 35, with ten years' experience in office, field and construction work, desires permanent position. Address "P. A. 24," Engineering News, New York. 24-12t

ERECTING ENGINEER, graduate, 10 years' shop practice, 4 years office, 1 year erecting machinery, 1 year erecting steel for buildings, now holding office position, desires change. Address "S. 25," Engineering News, New York. 25-2t

CIVIL ENGINEER, with several years' experience on plain and reinforced concrete, steel and building construction power plants, foundations, dock construction, sewers, drafting and railroad work. Address "P. A. 25," Engineering News, New York. 25-2t

CIVIL ENGINEER, age 36, M. Am. Soc. C. E., expert in design and construction of all kinds of municipal work, tunneling, concrete work, etc., desires position in city near Atlantic Coast; present position permanent; salary $3,500. Address "R. A. 25," Engineering News, New York. 25-4t

GRADUATE CIVIL ENGINEER desires position; experience in all classes of railway maintenance and construction; have done a good deal of track elevation work and railway yard design; also have experience in municipal engineering. Address "L. 22," Engineering News, New York. 25-2t

ENGINEER of over 20 years' experience on location, construction, maintenance railways, open to engagement; reliable reconnoissance reports and estimates for new projects a specialty. Address "G. 25," Engineering News, New York. 25-4t

WANTED.—Position in the North, by young civil engineer; four years' experience in railroad work; now employed by a Southern railroad as chief masonry inspector. No agencies. Address "M. B. 25," Engineering News New York. 25-2t

WANTED.—Position as instrumentman or resident engineer on construction work, or with contractor. Age 29. At present employed in East. Six years' R. R. experience. References. No objection to leaving United States. Address "L. B. 25," Engineering News, New York. 25-2t

ENGINEER, technical graduate (36), 15 years' experience in city work, sewers, water supply, street construction, paving, grade crossings, street railways, railway location and general surveying, especially qualified for position of engineer to large corporation, town or small city, or assistant to engineering firm to design, project and take charge of general engineering work; can furnish outfit; salary $150 to $200. Address "B. 26," Engineering News, New York. 26-1t

PRACTICAL ENGINEER, engaged at present, desires position as resident engineer or instrumentman or municipal work. Address "L. 26," Engineering News, New York. 26-1t

GRADUATE CIVIL ENGINEER, with 3½ years' experience in structural steel detailing, checking and designing, 1½ years in railroad maintenance of way work, can use transit and level; would like to change for a position in the Pacific possessions; good health and habits; can report on short notice. Address "O. 26," Engineering News, New York. 26-6t

GRADUATE CIVIL ENGINEER, 7 years' experience in designing, detailing and checking mill and office buildings, bridges, structural work for elevating and conveying machinery and coal and coke plants. Address "E. 26," Engineering News, New York. 26-2t

YOUNG MAN, 25, I. C. S. student of civil engineering course, desires position with a civil engineer to gain practical experience; good reference in New York. Address "P. 26," Engineering News, New York. 26-1t

LOCATING ENGINEER; $200. C. L. REAMER, 1464 Penn Ave., Columbus, Ohio. 26-5t

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Bridge and Structural Engineers.

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MECHANICAL DRAFTSMAN, technical graduate, 20 years of practical experience in mining machinery, hydraulic, steam and gas plants, air compressors, conveyors, etc., seeks employment with mining or manufacturing company. Address "L. 25," Engineering News, New York. 25-2t

DRAFTSMAN.—Experienced detailer and checker on structural steel wants permanent position in New England; competent to lay out work. Address "W. A. 25," Engineering News, New York. 25-3t

FIRST-CLASS DRAFTSMAN for building and bridge work, college graduate, 6 years' experience in detailing, checking and designing. Address "M. A. 23," Engineering News, New York. 25-3t

STRUCTURAL CHECKER, good experience, desires change; salary $150. Address "H. 26," Engineering News, New York. 26-2t

CHIEF STRUCTURAL DRAFTSMAN; $150. C. L. REAMER, 1464 Penn. Ave., Columbus, Ohio. 26-5t

DRAFTSMAN.—Experienced in general railroad work, desires substantial change. Address "Z. A. 26," Engineering News, New York. 26-1t

Superintendents, Misc., etc.

SUPERINTENDENT OF CONSTRUCTION open for engagement about July first; experienced in steam shovel, pile driving, concrete, masonry, buildings, tracks, coke ovens, blast furnaces and machinery construction and erection; references from present employers. Address "O. 22," Engineering News, New York. 22-6t

ENGINEER AND SUPERINTENDENT, or manager for large contracting firm, desires change, about July 1, for broader field; technically educated, both civil and mechanical engineering; age 38; M. Am. Soc. C. E.; broad and comprehensive experience in general engineering and contracting, having had full charge of designing and constructing important works during past 12 years. Experience on railways, canals, rivers, harbors, dredging, excavating, earth and rock tunnels, sewers, water-works, reservoirs, docks, wharves, difficult foundations, masonry, massive concrete structures, submerged structures, cofferdams, caissons, estimating cost, bidding on and executing contract work, handling large forces and executing difficult work. Full information on request. Refer. past and present employers. Sober and industrious. Prefer position with contracting firm. Address "H. A. 23," Engineering News, New York. 23-5t

CONSTRUCTION SUPERINTENDENT, having constructed important works, especially in reinforced concrete, also having had charge of important preliminary work, desires permanent position; pay $175 per month; can accept position Aug. 1, 1906. Address "O. A. 25," Engineering News, New York. 25-2t

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Write to us and we will tell you all about it and of other features
NORTH AMERICAN METALINE CO.
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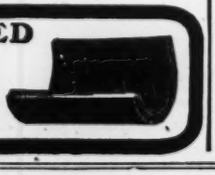

FOR ADDITIONAL
"SITUATION WANTED"
ADVERTISEMENTS
See Page 250.

SALES MANAGER, now employed, desires to change; experienced in advertising and handling salesmen; for good company can make results of anything selling to contractors, railroads or municipalities. Must want minimum of $2,400 and a share of what results obtained. Address "B. 24," Engineering News, New York. 24-5t

ENGINEER, age 30, technical education, 8 years' experience general industrial works engineering on design, construction and equipment of plants, estimates, specifications and contracts; ability to secure and direct contracts; references present employers et al. Address "B. B. 25," Engineering News, New York. 25-tf

GENERAL FOREMAN, successful in producing first-class work at satisfactory cost; practical experience; building and repairing high-grade machinery; practical mechanic; desires change. Address "E. 25," Engineering News, New York. 25-12t

SUPERINTENDENT OF CONSTRUCTION, at present in charge of important work, over 20 years' actual experience as engineer and superintendent of construction of railroads, water-works, reservoirs, masonry dams, canals, power plants, concrete foundations, piers, dams, aqueducts, docks, wharves and tunnels, designing and constructing complete mining plants; have handled large forces of men successfully, purchasing all machinery, materials and supplies; satisfactory references; unsatisfactory location only reason for making a change. Address "R. 25," Engineering News, New York. 25-8t

YOUNG GRADUATE desires position; reference. Address P. O. Box 276, Baton Rouge, La. 26-5t

CHIEF ENGINEER and superintendent, age 38, with 15 years' experience in Latin-American countries, now open for engagement; can take complete charge of railway proposition from surveys, through construction to operation; speaks Spanish; fully conversant with laws, customs and labor in southern countries; has good following of assistants; references. Address "A. 26," Engineering News, New York. 26-1t

SALESMAN and estimator, young, scientific Harvard graduate; knows architects, builders and engineers; familiar with building and machinery construction. Address "R. 26," Engineering News, New York. 26-1t

SITUATIONS OPEN (or Vacant)

Rates 3 cents a word a time, set solid; 4 cents single leaded; 4½ cents double leaded; display $1.50 an inch. Miscellaneous wants are the same rate. Copy for Classified Advertisements may be left at any office of the American District Telegraph Co., New York City.

CONTRACTOR'S Superintendent and General Foreman.—Houston, Texas; railway and general construction work; must understand earth work, steam shovel and bridge work, docks, tunnels and sewerage; also the selection and handling of men. Address "I. 16," Engineering News, New York. 18-tf

WANTED—Mechanical draftsmen of experience and ability for blast furnace, open hearth and general rolling mill work. Position permanent for satisfactory men. State age, experience and salary desired. CAMBRIA STEEL CO., Johnstown, Pa. 17-12t

WANTED.—Experienced draftsmen to make working drawings for railroad bridges; state education, experience, age, salary expected and advise how soon could report; send small blueprint sample of work. Apply to THE TOLEDO-MASSILLON BRIDGE CO., Toledo, Ohio. 23-tf

WANTED.—A young man to take an interest and invest $10,000 with engineer and contractor, with large plant and growing business but handicapped by lack of ready money, to form a construction company. Address P. O. Box 482, 120 Broadway, New York City. 23-tf

WANTED.—Instrumentmen, draftsmen and concrete inspectors; state age, experience and education. Address BOX 905, Schenectady, N. Y. 22-6t

WANTED.—By a large contracting firm, New York City, structural engineers, checkers and draftsmen, experienced on mill buildings, office buildings and bridge work; good salary paid to the right men. Address "P. 25," Engineering News, New York. 25-4t

WANTED.—A transit man for general work; one with experience around steel plants and blast furnaces and with good knowledge of railroad work preferred. One draftsman for railroad map work. Apply, giving age, experience, etc., to G. R. RAMSEY, Civil Engineer, Tennessee Coal, Iron & R. R. Co., Ensley, Ala. 24-4t

NOTICE—Want columns of this journal are for the special benefit of persons looking for change of employment or of firms wanting additional help. Persons answering want advertisements outside of the agency column, and finding that the advertisement is in any way connected with employment bureaus will confer a favor by notifying Engineering News immediately.

TO ADVERTISERS

In order to insure the proper classification of "Want," "For Sale" and similar advertisements, it is necessary that copy shall be in our office by five o'clock on the Tuesday preceding date of publication.

WANTED.—An assistant professor of railroad engineering at a leading Eastern institution; good salary and opportunity for advancement; give full particulars as to experience. Address "O. 25," Engineering News, New York. 25-3t

WANTED—A competent, experienced draftsman in general railroad, structural and bridge work; none but an experienced man wanted. Address "E. B. 24," Engineering News, New York. 24-3t

WANTED.—Superintendent take charge general construction work, concrete, buildings, etc.; send references regarding past experience. BRADY CONSTRUCTION COMPANY, Fairmont, W. Va. 24-3t

FROG AND SWITCH DRAFTSMAN; one familiar with all the details of the work; state experience, age, married or single, salary expected, and when he can report for work. Address "S. A. 17," Engineering News, New York. 24-tf

DRAFTSMAN. — Experienced detailer and checker on structural iron; good chance for right man. Address "L. A. 25," Engineering News, New York. 25-2t

SWITCHBOARD MEN—Experienced men on telephone switchboard work, who are thoroughly familiar with circuits and who are capable of doing some executive work. This is a good opportunity for up-to-date men. Address reply to Department No. 29, Western Electric Company, Chicago. 24-12t

WANTED.—Two template makers experienced in bridge and structural work. Permanent position to right men. Apply to BERLIN CONSTRUCTION CO., Berlin, Conn. 25-2t

INSTRUCTOR IN CIVIL ENGINEERING wanted for September. Applicant should have had experience in structural detailing or in field work. Experience in teaching also desirable. State qualifications in letter to PROFESSOR MERRIMAN, Lehigh University, South Bethlehem, Pa. 25-2t

WANTED.—Competent foreman for structural shop; must be steady and sober and able to report for duty at an early date; references required; in making application state salary wanted. Address "M. 26," Engineering News, New York. 26-1t

WE ARE IN NEED of a superintendent on concrete steel floor construction for a couple of months. Call at our office at your earliest convenience. HENRY STEERS, 17 Battery Pl., New York. 26-1t

WANTED.—A mechanical engineer draftsman. Apply Room 1114, 99 Cedar St., New York. 26-1t

WANTED.—Runners or engineers for floating steam dredges on ditch work; none but sober men need apply. Address O. F. DOYLE, St. Cloud, Minn. 26-3t

WANTED.—A young man who combines a thorough acquaintance with architects and general contractors in the New York district with ability to sell high-grade pressure water filters; preference will be given to one having a knowledge of structural contracting. Address "I. 26," Engineering News, New York. 26-1t

WANTED.—Several bright, energetic young men just out of technical college to learn structural and tank work; willing to start at reasonable salary with large iron and steel concern in Chicago; splendid opportunities for advancement; require best of references as to character. Address "Z. 26," Engineering News, New York. 26-1t

WANTED.—A few first-class fitters and markers, familiar with bridge and structural iron work; one that can read drawings. JOLIET BRIDGE & IRON CO., Joliet, Ill. 26-1t

WANTED.—Structural draftsman, competent to detail buildings, by old established steel concern; young man with college education preferred; good opportunity for right party. Address, stating education, previous experience, salary expected; location, Chicago. Address "K. 26," Engineering News, New York. 26-1t

WANTED.—Sewerage engineer and constructor; expert in designing systems and in construction work; man willing to assume responsibility and invest capital (not less than $5,000), can establish a good connection with a fully organized sewage disposal company having in hand good work with future business secured; no agents. Address "C. 26," Engineering News, New York. 26-1t

FOR ADDITIONAL
"SITUATION OPEN"
ADVERTISEMENTS
See Page 250.

MISCELLANEOUS WANTS

Cards under this head are inserted in uniform style, in solid type, at 3 cents a word (address to be counted); displayed (to occupy not less than one inch space), $1.50 an inch. Cash MUST accompany the order in all cases. Copy for Classified Advertisements may be left at any office of the American District Telegraph Co., New York City.

WE BUILD sheet-metal construction work for engineers and contractors who are proprietors of meritorious devices and who desire the resources of a well equipped factory, combined with an efficient sales department, for the manufacture and marketing of their apparatus. We are also in a position to finance promising propositions.
THE NORTH PENN IRON CO.,
Third and Erie Aves., Philadelphia, Pa.

WOULD like to correspond with a practical, experienced dredge runner, who has small amount of capital, with view of his investing same in stock of a dredge company and of his running a dredge. Address "C. 25," Engineering News, New York. 25-3t

WANTED.—Will pay 50c. for one copy of Engineering News of Feb. 28, 1878, and 10c. each for copies of Jan. 4, 18, March 22, April 5, 12, 1906. Cost of postage allowed. Address A. R. T., c/o Engineering News, 220 Broadway, New York. tf

AUDORN & BARNEY CO., Engineers; Structural Designing, Detailing; Mechanical Equipment of Buildings. 1 Madison Ave., New York. 25-2t

FOR ADDITIONAL
"MISCELLANEOUS WANTS"
ADVERTISEMENTS
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Italian Laborers Supplied
FREE OF CHARGE

For railroad building, waterworks, quarries, and all kinds of construction work by
THE ITALIAN LABOR
INFORMATION OFFICE FOR ITALIANS
(Incorporated)
59 LAFAYETTE (formerly Elm) STREET
NEW YORK CITY
No charge either to applicants for help or to the laborers.

LABORERS

SUPPLIED FOR RAILWAY, WATER-WORKS, QUARRY AND OTHER LINES OF CONSTRUCTION WORK, IN THE UNITED STATES AND CANADA. Estab. 1890
JULIAN BROS., 110 Mott Street, N. Y.
Telephone, 2358 Franklin
BRANCH OFFICE, FORDWICK, VA.

MIKE LALLI
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Italian Laborers
SUPPLIED FOR ALL KINDS OF CONSTRUCTION WORK

Italian Laborers Supplied

For all kinds of Construction Work. Any number of mechanics and skilled laborers furnished at short notice.
J. A. SILVESTRO & CO.
180 Sullivan Street New York

Italian Laborers Supplied

for all kinds of construction work
TONY CASSESE
Tel., 1944 Franklin 78 Mulberry St., N. Y.
25-10T

One reason why the **Nash Road** the regular built road will outlast any other road twice over, is, that it is regular built. **IS THERE ANY OTHER REGULAR BUILT ROAD?**

But there are other reasons, reasons known to and admitted by the ENTIRE PROFESSION OF THE CIVIL ENGINEERS which make it more than twice. HADN'T you better ACQUAINT yourself with these reasons.

ANYBODY can say they have got the best road, but that don't make it so. WHAT REASON is there for the present DEPLORABLE SITUATION in paving affairs?

IF YOU WANT TO KNOW, ask
The Nash Road, Borough of Brooklyn, N. Y. City, U.S.A.

GRAVITY CONCRETE MIXER

WANTED—A MANUFACTURER

To build and sell same on royalty basis, or to buy patent. Terms reasonable, and article meritorious.

For particulars, address, "W 20," Engineering News, New York. 24-3t

WANTED

Party thoroughly experienced in the manufacture of Sand Lime Brick, to take small amount of Stock and take the management at good Salary. Factory is new and thoroughly up-to-date in every way and located in a town of 25,000 population in rapidly growing territory. Present owners have no time to look after the enterprise and a very attractive proposition will be made to right party.

FRENCH BROAD GRANITE BRICK CO.,
23-8t Asheville, N. C.

WANTED

TO PURCHASE FOR CASH
Two 65 to 70-ton, and two 35 to 45-ton
STEAM SHOVELS

For early delivery. Give full description, condition and lowest cash price.

A. C. TORBERT & CO.
547 Monadnock Block
Chicago, Ill. tf

WANTED TO BUY
TWO SECOND-HAND
STEAM ROLLERS

Address, C. D. VICKERS,
R.F.D. LOCKPORT, N. Y.

WANTED
TO BUY FOR CASH
STEAM ROAD ROLLERS

State weight, make, condition and price. Address, "S. 963," Engineering News, New York. 16-13t

TECHNICAL TRANSLATIONS

FROM AND INTO
Spanish, Portuguese, French

Engineering Specifications, Catalogues, Correspondence, etc. A. M. EVERIT, M.E., 46 West 64th Street, New York.

WANTED
Electric Motor, 15 H.-P.

Alternating Current, single phase, 60 cycles, 208 volts. State make, R. P. M., time in use, and net price F. O. B. crated.
21-tf COURIER-NEWS, Plainfield, N. J.

The Cement Worker's Hand-Book

A practical treatise on Cement and Its Use in Construction. V. chapters, one each on Cement, Mortar, Concrete, Cast Products, Notes, Practical Methods of Reinforcing with Metal. Fourth Edition. Revised. Cloth Bound. Send 50 cts. to W. M. BAKER, Wadsworth, Ohio. 21-8t

CONTRACTORS WANTED

Contractors with small outfits on Tidewater Railroad in Virginia. First-class work. Best prices ever paid sub-contractors in the South.

MACARTHUR BROTHERS CO.
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A San Francisco construction corporation desires to take a few agencies for materials and supplies connected with the contracting business.
Address "Z. 25,"
25-4t c/o Engineering News.

Contractors' Supplies

The Harbor Construction Co., 821 Eddy St., San Francisco, Cal., desires catalogues of all contractors' supplies. 25-4t

Situations Wanted

Received too late for pages 40 and 41. Copy should be received by Tuesday a. m.

Mechanical and Electrical Engineers.

WANTED—By young man, 22 years old, recent University graduate, M. E. course, position in office of engineer or contractor or in machinery house, or in electrical work. Best of references. Salary no object. Address "G. A. 25," Engineering News, New York. 26-1t

MECHANICAL ENGINEER, technical graduate, three years' experienced in factory engineering, testing, designing and construction; familiar with the manufacture of gas and soap; at present employed by consulting engineer; desires position near N. Y. City. Address "G. A. 26," Engineering News, New York. 26-2t

GRADUATE of a college, mechanical engineering course, desires civil or mechanical position; has had practice in surveying; also mechanical and civil work around rolling and tube mills. Address "M. 25," Engineering News, New York. 26-2t

Civil Engineers.

CIVIL ENGINEER, technical graduate, 5 years' varied experience, bridge erection, water-works, surveys, office work; three years' experience in industrial plant construction, steel and reinforced concrete; good at precise instrumental work, setting templates or machinery; fair draftsman; last work on million dollar plant. Desires position on construction, preferably with industrial plant or building contractor. Address "K. A. 26," Engineering News, New York. 26-4t

CIVIL ENGINEER, who for six years has made a specialty of the development of non-metallic mineral properties, is open for engagement. Technically trained, and thoroughly conversant with the mechanical problems involved, is competent to locate quarry and plant economically, design and erect plant, and purchase all machinery and materials. Twenty-five years of age, and married. Salary $2,000 per year, and extra expenses. Address "I. A. 26," Engineering News, New York. 26-1t

ENGINEERING MAGAZINE GRADUATE, now employed, experienced in sanitary, hydraulic and railroad design and construction, wishes reviewing and composition work. Address "A. A. 23," Engineering News, New York. 26-2t

Draftsmen.

STRUCTURAL DRAFTSMAN, first-class designer, detailer and checker of steel work, foundations, etc., is open for engagement with responsible firm offering permanent position. Address "D. A. 26," Engineering News, New York. 26-1t

STRUCTURAL DRAFTSMAN, with long experience, reliable for building and bridges, graduate Civil Engineer, wants employment. Address "M. 23," Engineering News, New York. 26-3t

EXPERIENCED RAILROAD DRAFTSMAN wants position, preferably on construction work. Competent designer and estimator. All-round man. Graduate Civil Engineer. Least salary $110. Address "F. A. 26," Engineering News, New York. 26-2t

DRAFTSMAN, young man, at present employed, desires position with consulting engineer or engineering company; 1 year drafting, shop experiences; references. Address "L. A. 26," Engineering News, New York. 26-1t

STEEL DETAILER desires position in or near New York. Best references. Address "P. A. 26," Engineering News, New York. 26-3t

Surveyors.

RODMAN OR LEVELER, young man, 30 years of age, wants position as rodman or leveler; one year's experience as rodman with city surveyor and one year's experience on tunnels in and around N. Y. City. Will go anywhere. Address "E. A. 26," Engineering News, New York. 26-12t

Superintendents, Etc.

BUILDING SUPERINTENDENT, at present employed, wants work in New York City. Can show work done there, and refer to former employer as to ability. Address "C. A. 26," Engineering News, New York. 26-1t

WANTED—Position as superintendent by man of twenty years' experience in R. R. and municipal work. Address "H. A. 26," Engineering News, New York. 26-3t

SANITARY AND HYDRAULIC ENGINEER wishes responsible position with firm or corporation; graduate, now employed; familiar with all details of design and construction. Address "F. A. 18," Engineering News, New York. 26-2t

FOR ADDITIONAL
"SITUATION WANTED"
ADVERTISEMENTS
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STEAM SHOVELS LOCOMOTIVES, CARS, ETC.

Railway and Contractors' Equipment

For Prompt Delivery. Right Out of Our Shops

SPECIAL LOT—50,000 and 60,000 capacity, **FLAT CARS,** 34 ft., 36 ft. and 40 ft. long; Westinghouse Air, etc. Strictly first-class cars.

WHAT ARE YOUR REQUIREMENTS?

Telegraph, Telephone or Write us. Correspondence solicited.

A. C. TORBERT & COMPANY

547-548 Monadnock Block, Chicago

SHOPS AT CHICAGO Long Distance Telephone: Harrison, 4425

For Sale—Immediate Delivery

One 45-ton Baldwin Standard Gauge Switcher, thoroughly overhauled, just out of the shops; like new.

One 18 x 24 American type, 40 tons, standard gauge, a modern, up-to-date machine, fine order, most elaborate fixtures in cab, brand new tender.

One 16 x 24 Tannton American type; weight, 35 tons, good condition, thoroughly overhauled.

One 8 x 14 Porter, 36-in. gauge, in most excellent condition.

Two 9 x 14 Porters, 36-in. gauge, in first-class condition.

One 9 x 14 Dickson, 36-in. gauge, thoroughly overhauled, A1 order.

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Unit Concrete Steel Frame Co.

1309 to 1314 Commonwealth Building

PHILADELPHIA, PA.

desires selling agents who are thoroughly competent and able to elucidate the merits of the

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OF

Reinforced Concrete

and can sell the material manufactured and sold by this Company. Commission basis only.

We are represented in the states of Maine, Massachusetts, New Hampshire, Rhode Island, also in New York City and San Francisco. See our advertisement on page 76. 25 4t

A HIGH GRADE EXECUT... years old; electrical or ... strong on the selling en... tive position with reliabl... take N. Y. office for Ea... dress "R. A. 26," Engine... York.

Situations Open

A CONTRACTOR for bridge... established a number of... good paying business, w... hand, wants an experi... young engineer to take... the business. An excellent... the right man. Address ... gineering News, New Yo...

WANTED—Several structura... building work. Apply H... & IRON WORKS, Newark...

WANTED—By railroad co... pany, mechanical and el... man experienced in desig... struction of power plants... ence, age and salary expe... "A. A. 26," Engineering... York.

WANTED—Chemist for Por... plant in Spanish Ameri... statement of particulars, ... and references to BLON... Second Street, Louisville, K...

WANTED IMMEDIATELY—Y... man; recent graduate of a... ing school preferred; must... do other work than dra... ALSEN'S AMERICAN POR... MENT WORKS, Alsen, Gre...

WANTED—Industrial engineer... capable designing and ... work and construction ... State experience, salary desi... liberty. Address "B. A. 25... ing News, New York.

STRUCTURAL DRAFTSMEN ... are experienced in the design ... houses and similar lines. ... positions. Address "S. B. 25... ing News, New York.

WANTED.—An engineer fully capable to open a soapstone quarry, lay out and install the plant, draw plans for buildings required, etc. Some field work. Name references and salary expected. Address "K. B. 25," Engineering News, New York. 26-1t

FOR ADDITIONAL
"SITUATION OPEN"
ADVERTISEMENTS
See Page 250.

Miscellaneous Wants

CHEMICAL ENGINEER of experience and ability wishes to join engineering firm or form partnership with mechanical engineer with established business. Address "G. 26," Engineering News, New York. 26-1t

WANTED—To secure the present address of Alexander L. Lucas. C. M. WARD, Lamar, Colo. 26-3t

MANAGER.—An energetic man with executive ability and fifteen years' experience in the building business, would like to represent an out of town firm of builders as manager in New York, or would represent a N. Y. house in other cities. Address "O. A. 26," Engineering News, New York. 26-1t

WANTED

Wanted f. o. b. Kansas City, Kansas

1 Locomotive standard gage, 20-ton.
9 Gondola Cars standard gage, 20-ton capacity.
3 Flat Cars standard gage, 20-ton capacity.
1 Box Car standard gage, 20-ton capacity.

Will lease for eight months. Quote best selling price.

2 Clam Shell Buckets, one-yard capacity.

Address "C. B. 25," Engineering News, New York. 25-2t

FOR ADDITIONAL
"MISCELLANEOUS WANTS"
ADVERTISEMENTS
See Page 250.

No Confusion

Train every hour and on the hour to

PHILADELPHIA

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Reading Route

NEW JERSEY CENTRAL.

All trains have parlor cars and coaches of latest design.

FOR SALE

Space under this head is sold at the uniform rate of $1.50 an inch; minimum charge, $1.50 a week.

Bargains for Sale

The following items are offered for quick sale. If you are interested, you had better correspond with us at once. We are constantly changing this list.

Our stock includes a considerable quantity of material from the St. Louis World's Fair, as well as from our purchases from various sources.

HEAVY TIMBERS.

500,000 feet of timbers, sizes 4 x 4 to 14 x 14; lengths up to 80 ft.

Also lumber of every kind. Delivery on this from St. Louis.

HYDRAULIC PIPE.

35 miles of heavy flanged hydraulic and high pressure wrought-iron lap-welded pipe, ranging in sizes from 10 to 16-inch. This pipe is flanged with tongued and grooved flanges, and will stand a higher pressure than any pipe manufactured. We can furnish with this pipe, Crosses, Ells, Tees and a full line of valves to match.

STANDARD WROUGHT-IRON PIPE.

6 miles of all sizes of standard wrought-iron lap-welded pipe, in sizes from ¾ to 16-inch.

OTHER PIPE.

Cast-iron pipe in sizes from 6 to 36".
Tile pipe from 6 to 42".
Riveted pipe from 8 to 96".
Spiral riveted pipe from 4 to 36".
Extra heavy wrought-iron pipe, sizes from 8 to 12".
Square wooden pipe, 4½ x 4½".
Pipe of every kind.

HIGH PRESSURE VALVES.

500 extra high pressure, especially constructed brass trimmed valves, sizes 12 to 42-inch, which we offer at a saving of at least 40% from the price of new valves. We guarantee them in absolutely first-class condition. All valves are tested before shipment. Also valves of all kinds. Send for our complete list.

WATER HYDRANTS.

1,000 "Corey" and "Pratt-Cady" Water Hydrants, used on high and low pressure systems at the Exposition.

U. S. GOVERNMENT BUILDING.

We own the building used at the St. Louis Exposition by the U. S. Government. It was constructed at an enormous expense and was built of steel and iron. Its dimensions are approximately 200 x 700 ft. It is strictly modern. Can be used for Factory Building, Railroad Terminal, Auditorium, Exhibition or a Building of any kind where large clear space is needed. Full specifications, photograph and blue prints furnished on application.

ASK FOR OUR SPECIAL EXPOSITION CATALOGUE NO. 258.

Chicago House Wrecking Company
35th and Iron Streets, Chicago

FOR SALE

Little Giant 1¼-yard Shovel

ON STANDARD TRUCKS

Three sets engines. Recently rebuilt for hard service. Complete, with track and spare parts.

Exceptionally Low Cash Price

to save moving, will be made quick buyer. Inspection near Pittsburg.

CARLIN MACHINERY & SUPPLY CO.
INC.
Sandusky and Lacock Sts., Allegheny, Pa.

FOR SALE

18 ton Standard Gauge Dinky, 10 x 16.
2 Smith Mixers; 2 Ransome Mixers.
200 tons 40-lb. Relaying Rails.
Several lots 3-yard Dump Cars, 36-in. gauge.
2 Porter Saddle Tanks, 9 x 14, built 1903.

CHARLES F. AVERY
45 Broadway, New York

FOR SALE

Centrifugal Wrecking Pumps

8-inch suction in perfect order. Never used but ten days. Write,

EUREKA MACHINERY COMPANY
26-5t P. O. Box 113, Tampa, Fla.

FOR ADDITIONAL

"FOR SALE"

ADVERTISEMENTS

See Page 250.

FOR SALE

4 Lidgerwood 7 x 10-in. D. D. D. C. Hoisting Engines.
6 R-McD. 7 x 10-in. D. D. D. C. Hoisting Engines.
3 R-McD. 8 x 10-in. D. D. D. C. Hoisting Engines.
1 Mundy 7 x 10-in. D. D. D. C. Hoisting Engine, with boiler.
1 Lambert 7 x 10-in. D. D. D. C. Hoisting Engine, with boiler.
1 Lidgerwood 8¼ x 10-in. D. D. D. C. Hoisting Engine, with boiler, "Special."
6 No. 3 Ransome Concrete Mixers, with vertical 7 x 7 engine, mounted on wheels (no boiler).
3 Carlin's Cube Mixers, 5-foot.
1 No. 4 Smith Mixer.
2 No. 2½ Smith Mixers.
1 No. 3 Foote Mixer, with boiler and engine attached, mounted on wheels.
20 Dump Cars, 3 yards, one-way dump, 36-in. gage.
3 Porter Locomotives, 9 x 14, 36-in. gage.
3 "L" Locomotives, 10 x 16-in.
2 Lidgerwood Rapid Unloaders, on cars.
2 Marion Steam Shovels, Model "K," No. 601, 615.
1 Marion Steam Shovel, Model "A," No. 246.
4 18-in. gage, 6 x 10-in. Porter Locomotives.
35 18-in. Peteler Dump Cars, 1-yd. capacity.
5 Class "A" Ingersoll-Sergeant "straight line" Air Compressors, 14 x 14¼ x 18-in.
1 14 x 14⅜ x 18 Hall Air Compressor.
150 3-yd. dump cars, 36-in. gage side dump.
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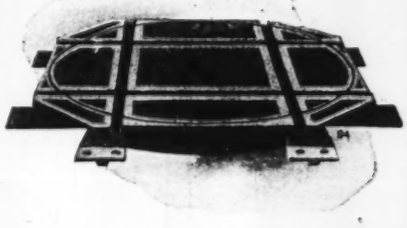

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All Steel Tubular and Trucks of Every Kind
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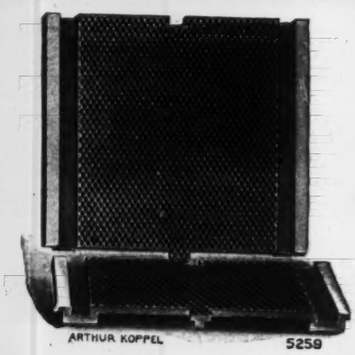

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2 70-ton Bucyrus steam shovels.

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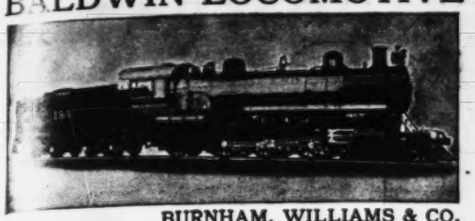

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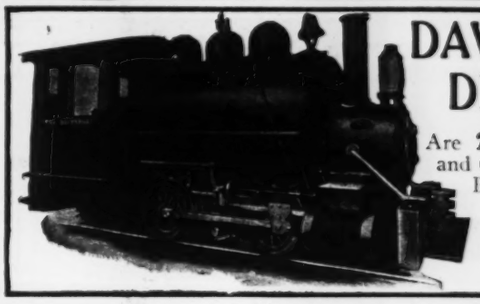

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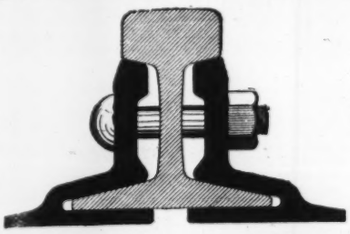

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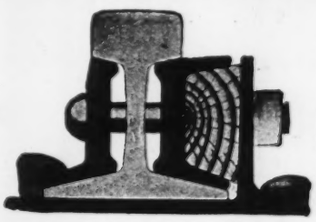

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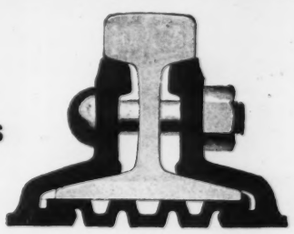

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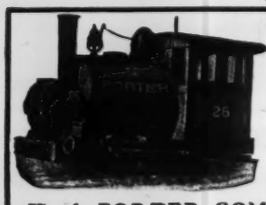

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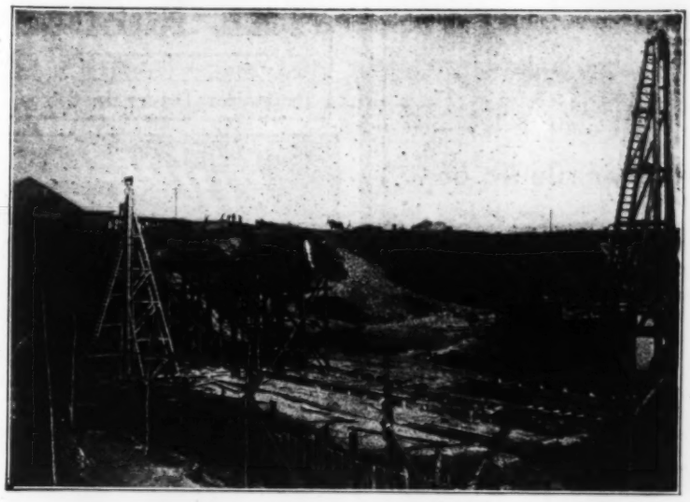

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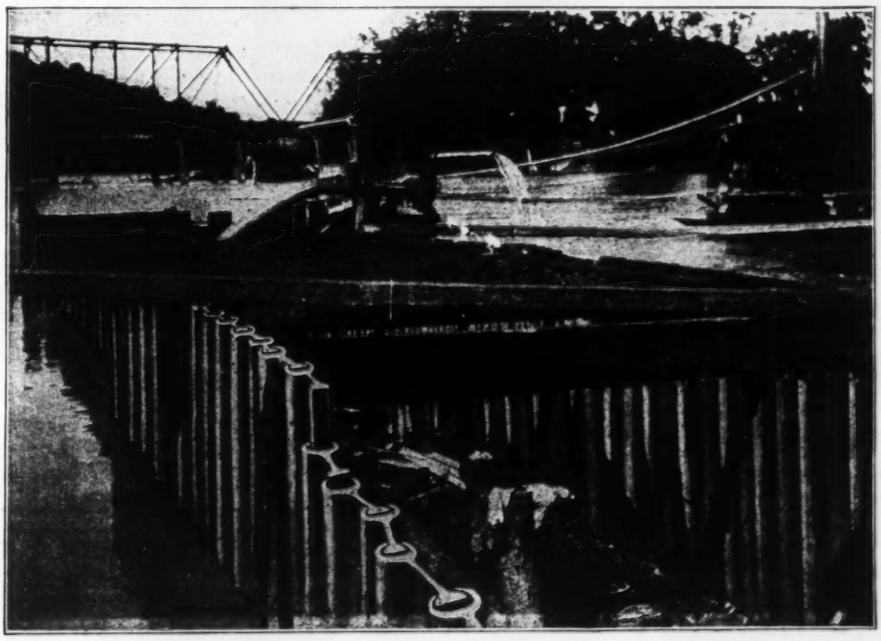

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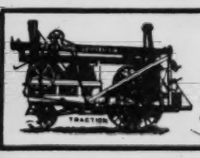
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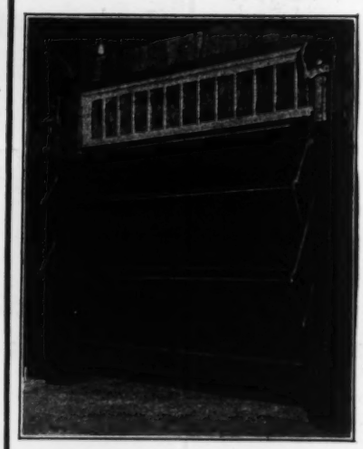
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IT PAYS TO CONSIDER THE COST
The small size Chicago Sewer Excavator does the work of from 75 to 150 men, the large size from 100 to 200 men.
The machine digs a trench from 14 inches to 60 inches in width and up to 20 feet in depth at a single cut.
In ground suitable for machine work, it will excavate from 60 to 120 cubic yards an hour.
The width of trench can be readily altered by changing the buckets.
It will cut a trench practically to grade.
The entire machine is supported on surface in advance of cut and there is therefore no danger of trench caving from weight of the machine.
The machine is equipped for self-traction. It will travel over country roads at the rate of two miles an hour under viaducts and overhead wires without dismantling and is ready for operation as soon as it arrives on line of trench.
In deep work with hand labor, the cost increases rapidly with depth and where hard pan is encountered frequently proves ruinous to the contractor. With the machine the cost increases slightly with depth since the entire depth is made at a single cut.
On many kinds of work it will reduce the cost to one-tenth of the expense of hand labor.
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CONCRETE STEEL BRIDGE.

Great Neck, L. I.

Sealed proposals for constructing a concrete steel bridge over Udall's mill pond at Great Neck, Nassau County, New York, and endorsed "Proposals for Bridge," will be received by the Highway Commissioners of the Town of North Hempstead, at the Town Clerk's Office, Roslyn, Long Island, until three P. M., Tuesday, July third, 1906, and will be publicly opened and read at that time.

The Board of Highway Commissioners reserve the right to accept any bid or reject any or all bids, should it deem it to the best interests of the Town of North Hempstead.

A certified check, drawn to the order of the Highway Commissioners, for the sum of $1,000.00, must accompany all bids.

Plans and specifications are on file at the Town Clerk's Office, Roslyn, Long Island or may be seen and obtained from the office of William H. Bowne, Glen Cove, New York, who is the Engineer for the Commissioners.

R. E. ALLEN,
PAUL C. WOODNUT,
WILLIAM POST,
Highway Commissioners.

25-2t

WATER MAINS.

Braintree, Mass.

Sealed bids, addressed to the Water Commissioners of Braintree, Mass., and endorsed "Proposals for furnishing and laying Water Pipe," will be received at the office of the Water Commissioners, Town Hall, Braintree Mass., until 3 o'clock p. m. on Monday, July 2d, 1906, and at that time and place will be publicly opened and read. The work to be done consists principally in furnishing and laying 8,600 ft. of 8-inch C.-I. Water Pipe with hydrants, special castings, etc., and involves carrying the pipe under the tracks of the N. Y., N. H. & H. R. R. Plans may be seen and specifications and forms of contract obtained at the office of the Water Commissioners on and after June 21st, 1906. The commissioners reserve the right to reject any or all bids, or to accept any bid should they deem it for the interest of the town of Braintree so to do.

BOARD OF WATER COMMISSIONERS,
25-2t Braintree, Mass

DEPARTMENT OF THE INTERIOR, Washington, D. C., June 15, 1906.—Sealed proposals will be received at the office of the United States Reclamation Service, Billings, Montana, until 2 o'clock p. m., August 7, 1906, for constructing a pumping plant, involving about 15,000 cubic yards of earth excavation, 600 cubic yards of concrete, building about 2,000 feet of reinforced concrete pipe, furnishing 120,000 pounds of steel, and furnishing and installing water-power pumping plant, consisting of two vertical-shaft pumping units and accessories, each unit having a capacity of 28 cubic feet of water per second, lifted fifty feet. The plant will be located near Ballantine Station on the Chicago, Burlington and Quincy Railway, 23 miles east of Billings, Montana. Particulars may be obtained from the Chief Engineer of the Reclamation Service, Washington, D. C., or the Engineer, Huntley, Montana. E. A. HITCHCOCK, Secretary.
25-5t

DEPARTMENT OF THE INTERIOR, Washington, D. C., May 29, 1906.—Sealed proposals will be received at the office of the United States Reclamation Service, Browning, Montana, until 2 o'clock p. m., July 31, 1906, for the construction of about 14 miles of canal for the diversion of 850 cubic feet of water per second from the St. Mary River at a point about 35 miles northwest of Browning, involving the excavation of about 1,700,000 cubic yards of material. Particulars may be obtained at the office of the Chief Engineer of the Reclamation Service, Washington, D. C., or from Cyrus C. Babb, Engineer, Browning, Montana. E. A. HITCHCOCK, Secretary. 23-5t

SEA WALL.

FORT MONROE, VA. June 1st, 1906.—Sealed proposals, in triplicate, for furnishing labor and material for the repairing of the sea wall at Fort Monroe, Va., will be received at the Office of the Constructing Quartermaster until noon, June 30th, 1906. The United States reserves the right to accept or reject any or all parts of proposals therefor. Information furnished on application. Bids should be plainly marked as such on the envelope or outside wrapper. Address CAPTAIN R. H. C. KELTON, Q. M. 23-4t

GILLETTE'S HANDBOOK OF
COST DATA
For Engineers and Contractors
Price, $4.00 net, Postpaid
Send for Circular of Contents
MYRON C. CLARK, Publisher
11-21 Park Row, New York.

CHARLES MILLAR & SON CO., Selling Agents, Utica, N. Y.
UTICA PIPE FOUNDRY CO.
Cast Iron Pipe and Specials. Hydrants, Gates, Pig Lead, etc. Akron Sewer Pipe Lead Pipe, Plumbers' Material.

Automatic Air Lock and Siphonic Apparatus
OF EVERY DESCRIPTION
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For Operating Bacterial Sewage Filters, Septic Tank System of Sewage Disposal
ALSO THE
Miller, Miller-Potter, Rhoads-Miller and Rhoads-Williams
AUTOMATIC SIPHONS
For Intermittent Flush Tanks—for Flushing Street Sewers
NO MOVING PARTS IN ANY OF OUR APPARATUS
Send for Illustrated Catalogue
PACIFIC FLUSH TANK COMPANY
The Temple, 184 LaSalle Street, Chicago
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Canadian Agent, VICTOR HILL, C. E., P. O. Box 245, Niagara Falls, Ontario

RIVETED STEEL PIPE For Water, Gas, Sewers, Culverts, Penstocks, Air and Hydraulic Mining, Bridge Caissons, Girders, Smoke Stacks, Cupolas, Stand Pipes. TANKS
THE CARROLL-PORTER BOILER & TANK CO., PITTSBURG, PA.

THE T. A. GILLESPIE COMPANY, Engineers and Contractors
Manufacturers of Riveted Steel Pipe
PITTSBURG OFFICE, Westinghouse Building
NEW YORK OFFICE, Empire Bldg., 71 Broadway

THE PITOMETER CO.
310 Ashland Block, Chicago — 220 Broadway, New York
Our INSTRUMENTS are well known, having been used in New York, Brooklyn, Washington, Havana, Pittsburg, Columbus, Spokane, Chicago, Cleveland, Philadelphia, and many other cities.
Unlike All Other Meters the Pitometer is Portable
Can be used on any size of water main, at any time, where a "street connection" has been once set at a cost of $25 to $30. (All instruments patented.)

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STRALEY & HASBROUCK
Counselors at Law, Solicitors of American and Foreign Patents
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DESIGNS, TRADEMARKS, LABELS, COPYRIGHTS and Litigation affecting the same
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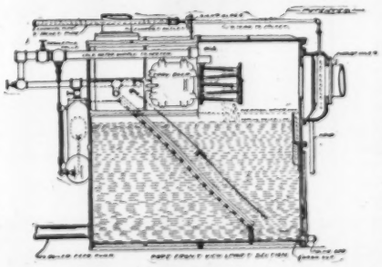
BUFFALO TESTING LABORATORY, GEO. A. RICKER, C. E., President, Ellicott Square, BUFFALO, N. Y.
Physical, Chemical and Electrical Tests.
Best Agency for Rail Inspection at Lackawanna Steel Co.

Highest Efficiency Increased Capacity Greatest Economy
INVESTIGATE OUR
Inclined Feed-Water Filters
and SEDIMENT DEFLECTORS
FOR BOILER FEED-WATER



WE have for sale, A Cochrane Heater, right hand, number 7½, 600 H.P., in use but short time. This heater is being taken in an exchange for a 1000 H.P. heating and purifying system which we are supplying. Heater will be available in about 60 days, or less. Price right. Write at once to
STUMP, REIDENBAUGH & PACKARD, Marion, Ohio, U. S. A.
Manufacturers of
ENGINEERS' INCLINED FILTERS and SEDIMENT DEFLECTORS
REMEMBER—We supply Heating and Purifying Systems, any capacity, equipped with our improved filtering apparatus.

Brayton Standards for the Uniform Design of Reinforced Concrete
This book means to be to the designer in concrete what the Carnegie handbook does to the designer of structural steel. Louis F. Brayton, Consulting Engineer, 1006 Guarantee Loan Building, Minneapolis. Price, $3.00.

A postal will bring gratis DATA on SHOVELS

THE WYOMING SHOVEL WORKS, Wyoming, Pa.

LARGE WATER POWER FOR SALE.

The Keewatin Power Company, Limited, will offer for sale at auction its developed Water Power on the West branch of the Winnipeg River, at the outlet of the Lake of the Woods, Town of Kenora (formerly Rat Portage), Ont., having the following characteristics:

Effective horse-power, 28,000, fall, 19 ft.; water supplied directly from the Lake of the Woods; entire immunity from ice difficulties of every kind; massive granite dam, on bed rock, foundation; 386 acres of land for utilizing power; direct connection with the main line of the Canadian Pacific Railway at Keewatin Station and direct navigation connections with the Lake of the Woods and Rainy River.

Sale will take place in the Russell House, Ottawa, Canada, on Thursday, 5th of July, 1906, at 2 p. m. The sale will be subject to a reserve bid. Plans of the property and further information may be had from the undersigned.

JOHN MATHER, President Keewatin Power Co., Ltd., 453 Laurier Ave., E., Ottawa, Can., or R. A. MATHER, Manager, Keewatin, Ont., Can. 13-15t

DEPARTMENT OF THE INTERIOR, Washington, D. C., June 11, 1906.—Sealed proposals will be received at the office of the United States Reclamation Service, Salt Lake City, Utah, until 3 o'clock p. m., August 30, 1906, for the construction of the Strawberry Tunnel, involving 18,000 linear feet, more or less, of tunnel, the same being a portion of a system for the diversion of about 500 cubic feet of water per second from Strawberry River to the Spanish Fork Valley, Utah. Particulars may be obtained from the chief engineer of the Reclamation Service, Washington, D. C., or the engineer, Salt Lake City, Utah. E. A. HITCHCOCK, Secretary. 25-6t

OFFICE, COMMISSIONERS, DISTRICT OF COLUMBIA, Washington, June 19, 1906.—Sealed proposals will be received at this office until 12 m., July 7, 1906, for furnishing water valves. Forms, specifications and necessary information may be obtained at his office. HENRY B. F. MCFARLAND, HENRY L. WEST, JOHN BIDDLE, Commissioners, D. C. 25-2t

Do Your Boilers Prime?
Have You Long Lines of Piping?
Does Your Engine Load Vary?
The Cochrane Receiver Separator
is a special type of the famous Cochrane Steam Separators, designed particularly for plants where such conditions exist.
These Separators are provided with extra large wells for taking care of large flushes of water or excessive condensation until it can be drained off.
They also serve as receivers for holding a supply of steam under full pressure, close to the throttle, enabling the engine to get the required steam instantly when the load is suddenly increased.
Cochrane Receiver Separators eliminate hammering and vibration in the piping, because the flow of steam into the receiver is continuous instead of being intermittent with the opening and closing of the engine valves.
Made in horizontal, vertical and angle form—all sizes.
Send for Catalogue 41-S.
HARRISON SAFETY BOILER WORKS
3166 North 17th Street
Philadelphia, Pa.

For other Proposal Advertisements see pages 51, 52, 53, 54, 56, of Advertisements, and Construction News page 250.

SEWERS.

Wadsworth, Ohio.

Sealed bids will be received by the Village of Wadsworth, Medina County, Ohio, at the office of the Village Clerk, until 12 o'clock noon, Monday, July 9th, 1906, for furnishing the necessary labor and materials for constructing Sanitary Sewers in High Street, Main Street, Mill Street, L and Dutt Streets in accordance with the plans and specifications now on file in the office of the Village Clerk.

The approximate quantities in said sewers are as follows: High Street from North Street to Main Street, 1,470 ft. 8-inch pipe; Main Street from High Street to the Erie Railroad, 3,940 ft. of 8-inch pipe; Main Street from High Street to Erie Railroad, 160 ft. of 10-inch pipe; Mill Street from Main Street to Disposal Plant 220 feet of 8-inch pipe; Mill Street from Main Street to Disposal Plant 590 feet of 10-inch pipe; Mill Street from Main Street to Disposal Plant 2,800 feet of 15-inch pipe; Dutt Street and L Street from Main Street to Mill Street 875 feet of 12-inch pipe; also 35 Manholes and 4 Flushtanks.

Each bid must contain the full name of every person or company interested in the same and must be accompanied by a certified check on some Wadsworth Bank in the sum of $300 as a guarantee that if the bid is accepted that a contract will be entered into and its performance properly secured.

Should any bid be rejected such check will be forthwith returned to the bidder, should any be accepted such check will be returned upon the proper execution and securing of the contract.

Bidders will be required to use the forms which will be furnished upon application to the undersigned.

The right to reject any and all bids is reserved.

26-1t P. S. GOSS, Village Clerk.

WATER-WORKS.

Spring Lake, Mich.

Sealed proposals will be received for the construction of a Sysetm of Water-Works for the Village of Spring Lake, Ottawa County, Mich., until twelve o'clock noon, July 16th, 1906.

There will be needed one 30-HP. Gasoline Engine and Triplex Pump combined.

A Pump Well 20 feet in diameter and 25 feet deep.

One Elevated Steel Tank, of 30,000 gallons' capacity.

About 140 tons of C. I. Water Pipe, 4" to 10" in size.

About 6,000 lbs. of special castings.

17 Valves and 15 Valve Boxes.

24 Hydrants.

And the laying of three miles of pipe.

Plans and specifications are on file with the President and can be obtained from him. A certified check or cash in the sum of $100.00 must accompany each bid, and the right to reject any or all bids is reserved.

DAVID M. CLINE, President,
Spring Lake, Michigan.
ALBA L. HOLMES, Engineer.
26-3t Grand Rapids, Mich.

WATER PURIFICATION PLANTS, ETC.

New Orleans, La.

Sealed proposals will be received until 3 o'clock P. M., Wednesday, September 5th, 1906, for furnishing and erecting two complete water purification plants—one of 40,000,000 gallons' capacity and one of 4,000,000 gallons' capacity—including excavations, foundations, concrete masonry, reservoirs and filters, head houses, pumping station building, wharf and intake, coal storage, machinery for handling coal, and other mechanical equipment, and all piping and appurtenances complete, ready for operation.

The following are the approximate areas covered by the more important structures:

Pumping station and boiler room	26,750 sq. ft.
Head house	10,200 " "
Filters	19,600 " "
Open coagulating reservoirs	488,800 " "
Covered clear water reservoirs	161,640 " "
Coal and coagulant storage house	6,880 " "
Wharf	2,220 " "
Length of telpherage line	1,160 L. F.

The reservoirs are approximately from 12 to 20 feet deep, mostly of reinforced concrete construction and with concrete lining. Buildings are of concrete and brick. Filters of reinforced concrete.

Specifications, general plans and blank form of proposal may be obtained at the office of the Sewerage and Water Board after July 1st. Plans can be seen at once at the office of the Board or at the office of Hering & Fuller, Consulting Engineers, 170 Broadway, New York City.

A certified check on a New Orleans bank, in the sum of $40,000, deposited in accordance with the terms of the specifications, will be required of each bidder.

A deposit of $100 will be required for each set of plans and specifications given out, which will be refunded upon the return of said sets in good condition.

A surety company bond, in a company doing business in the State of Louisiana, for an amount equal to 25 per cent. of the gross amount of contract, will be required of the successful bidder.

The right is reserved to reject any or all bids.

F. S. SHIELDS,
GEO. G. EARL, Secretary.
General Superintendent. 25-11t

SEWERS.

Fairbury, Nebr.

Sealed proposals will be received until Tuesday, July 10, at 12 o'clock M., for the construction of 5,875 feet of 10" and 2,700 feet of 8" sanitary sewer mains, including man holes and flush tanks, according to specifications and profiles on file in the office of the City Clerk. The right is reserved by the Council to reject any and all bids. Engineer's estimate, $7,500.00.

25-2t F. L. RAIN, City Clerk.

THE CUTLER MAILING SYSTEM PATENTED AND AUTHORIZED SHOULD BE SPECIFIED BY NAME WHERE A STANDARD AUTHORIZED MAIL CHUTE EQUIPMENT IS DESIRED. INSTALLED IN CONNECTION WITH THE U. S. FREE COLLECTION SERVICE ONLY BY THE SOLE MAKERS
THE CUTLER MFG. CO., Rochester, N.Y.

PAVING.

Carbondale, Pa.

Sealed proposals will be received by the City of Carbondale at the office of the City Clerk, until 8:00 p. m., Monday, July 2d, 1906, for the re-paving of Main Street from Eighth Avenue to Salem Avenue, according to plans and specifications on file in the office of the City Engineer, and in accordance with city ordinance providing for said work. Each bid must be accompanied by cash or certified check in the sum of Two Thousand Dollars as a guarantee of good faith to enter into a contract within ten days from date of award.

The City reserves the right to reject any and all bids.

H. T. WILLIAMS,
26-1t City Clerk.

WATER SYSTEM, ETC.

Bourbonnais, Ill.

Bids will be received until July 2d, 1906, at 8 P. M., at the Town Hall in the Village of Bourbonnais, in the County of Kankakee, for

One Steel Tower and Tank.
One Steel Tank on Brick Substructure.
One 8-inch Deep Well.
One Deep-Well Pumping Engine.
One 15-HP. Gasoline Engine and Deep-Well Pump.

Certified check of 5% of bid to accompany each bid.

Plans and specifications on file at the office of Village Clerk.

F. E. LEGRIS, Pres.

Board of Trustees reserves the right to reject any and all bids. 26-1t

WORK WANTED

For an Outfit of 100 Teams I Steam Shovel, 95 Western Dump Cars, 5 miles of Steel Rails, and a full equipment of the latest improved tools. Through with the present contract about June 20th, 1906. Any parties needing the services of such an outfit address

J. A. WARE CONSTRUCTION CO.,
24-4t 308 Houser Bldg., St. Louis, Mo.

FORT MONROE, VA., June [illegible]. Sealed proposals, in triplicate, [illegible]ing labor and material for the [illegible] Main Wharf, at Fort Monroe, [illegible] received at the Office of Constru[illegible] termaster until noon, July 7th, [illegible] United States reserves the right [illegible] or reject any or all parts of prop[illegible] for. Information furnished on [illegible] Bids should be plainly marked [illegible] the envelope or outside wrapper [illegible] Captain R. H. C. KELTON, Q. M[illegible]

TREASURY DEPARTMENT, O[illegible] Supervising Architect, Washing[illegible] June 15, 1906.—Sealed proposals [illegible] ceived at this office until 3 o'clo[illegible] on the 5th day of July, 1906, [illegible] opened, for furnishing and deliv[illegible] Office Lock Boxes, etc., as they [illegible] ordered for Post Offices in Public [illegible] under control of the Treasury D[illegible] during the fiscal year ending June [illegible] in accordance with drawing and spe[illegible] copies of which may be had at t[illegible] tion of the Supervising Architect [illegible] plying to this office. JAMES KN[illegible] LOR, Supervising Architect.

DEPARTMENT OF THE IN[illegible] Washington, D. C., June 15, 190[illegible] proposals will be received at the [illegible] the Engineer, U. S. Reclamation [illegible] Billings, Montana, until 2 o'clock [illegible] July 11, 1906, for the construction [illegible] vision 1, Garland Canal, Shoshone [illegible] involving the excavation of about [illegible] cubic yards of earth, about 96,0[illegible] yards of rock and shale, and the [illegible] tion of incidental structure, about [illegible] northeast of Cody, Wyoming. Pa[illegible] may be obtained from the Reclama[illegible] vice, Washington, D. C., or Cody, W[illegible] E. A. HITCHCOCK, Secretary.

THE KILLARNEY OF AMERICA

Nestling in a frame of beautifully [illegible]ded shores lies a series of beautiful lak[illegible] 145 miles north of the city of Toronto, Ontario, and known as the "Lake of Bays Region." A chain of seven lakes studded with lovely islands, with hotels throughout the district and a good steamboat service to all points attracts the tourist, angler and sportsman. Just the out-of-the-way sort of place to visit during the summer months. For all particulars and free illustrated publication apply to J. D. McDonald, Union Station, Toronto, Ont.

TRENCH EXCAVATOR
The "Buckeye" digs for 3 cts. per cu. yd.
Send for Catalog 2N
THE BUCKEYE TRACTION DITCHER COMPANY
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State Contractors Favor Climax

After every "letting" for State Roads in recent years, we have had hosts of orders for Climax Road Machinery. More Climax Equipments are used in State Road Work than of all other makes combined. Ask why.

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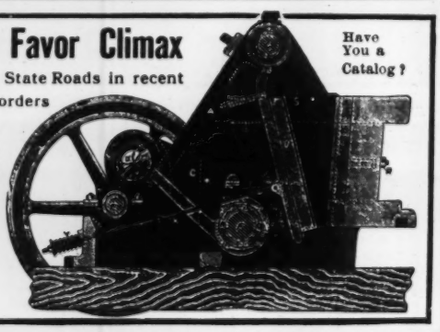
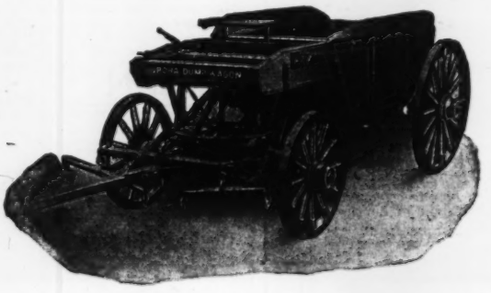
MARATHON, N. Y.

Have You a Catalog?





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LIGHT LOW STRONG EFFECTIVE

Our new hinge lifts the door on the outside of bed when dumping, permitting low construction and retaining ample clearance. Beds of oak and Washington fir. Made with our famous unbreakable front bolster.

Used with the **Western Elevating Grader** these wagons are money-makers and money-savers.

Wheeled Scrapers, Drag Scrapers, Grading Plows, Dump Cars, Spreader Cars, Dump Carts, Rock Crushers and Road Machines.

Western Wheeled Scraper Co.
AURORA, ILL.
EARTH AND STONE HANDLING MACHINERY

Capacities ½ to 2½ c.y.

THE PAGE PATENTED BUCKET
THE LATEST SUCCESSFUL TWO-LINE
Self-Loading Automatic-Dumping Power Scraper
MANUFACTURED BY
PAGE & SHNABLE, General Contractors, 1002 Security Building, Chicago, Ill.

SEND FOR ESTIMATES

TENTS
Stable Tents, Wall Tents, Paulins, etc.
For Railroad Contractors
THE MURRAY CO.
59 and 61 W. Washington St., Chicago

For other Proposal Advertisements see pages 51, 52, 53, 54, 56, of Advertisements, and Construction News page 250.

Jim Fellowes' Philosophical Talks No. 27

Down in the town I lived in when a boy, there was an eccentric old chap named Jim Snow. He had made his money—a heap of it—by running a general store and lumber mill; he had mortgages on two-thirds of the farms in the country and options on about all the timber land. He was proud of the fact that he was a self-made man and most of his yarns dated back to the time when he "curried a horse for a year, for my board, sir."

I often think of Jim Snow when I read the arguments of dumping wagon manufacturers, who claim to know all about dumping wagon construction just because some of their ancestors "built sulkies for forty years, sir."

In the Watson plant there are a good many men, expert dump-wagon builders, who would make a mighty poor job of building a democrat or a surrey. These are days when mechanics as well as professional men are "specialists." One of the reasons that a Watson Dumping Wagon stands right up to its work, lies in the fact that every single item of construction is the work of a specialist in this plant and the whole plant is a Dumping Wagon Plant.

Watson does not build all kinds of wagons—this is not a wagon factory, but a dumping wagon factory. Not only is it *a* dumping wagon factory, it is *the* dumping wagon factory—the first factory ever erected to build only dumping wagons, and the biggest plant of this sort anywhere on earth.

There's a reason for this growth, and every contractor who owns Watson Wagons knows the reason. Durability and freedom from repairs is a Watson advertisement.

WATSON WAGON CO.

THE PIONEERS IN

BOTTOM DUMP WAGON CONSTRUCTION

OFFICE AND FACTORY *CANASTOTA, N.Y.*

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256 Broadway, New York City.

605 Witherspoon Building, Philadelphia, Pa.

1019 Westinghouse Building, Pittsburg, Pa.

99 Randolph Street, Chicago, Ills.

Water Filters

Pressure and Gravity Systems for all Purposes

MUNICIPAL PLANTS A SPECIALTY

ROBERTS MANUFACTURING COMPANY

PHILADELPHIA, PA.

PITTSBURGH FILTER MFG. CO.

PRESSURE FILTERS WATER SOFTENING PLANTS

GRAVITY FILTERS

Farmers' Bank Bldg. Pittsburgh, Pa.

D. CUOZZO, GENERAL CONTRACTOR

Railroad, Water Works and Concrete-Steel Masonry Construction a Specialty

Work Superintended and Inspected. Estimates Furnished. Mechanics and Laborers Supplied
Contracts taken on Cost-Plus-Fixed-Sum. Write for References.

150 NASSAU STREET, NEW YORK

Telephone No. 4450 Beekman. Established 1883 Rooms 509-510

ARTHUR'S PASS TUNNEL CONTRACT.

New Zealand Midland Railway,
Wellington, New Zealand.

Alternative tenders will be received at the office of the High Commissioner for New Zealand, Westminster Chambers, 13 Victoria Street, London, S. W., for the Construction of a Tunnel, about 5 miles 25 chains in length, at Arthur's Pass, through the dividing range betwen Canterbury and Westland, on the route of the New Zealand Midland Railway. They are to be addressed to the High Commissioner for New Zealand, and marked on the outside "Tender for Arthur's Pass Tunnel." Tenders will be received up till noon of Monday, July 23, 1906.

Plans, specifications and conditions may be seen, and tender forms and other information obtained from Mr. Virgil G. Bogue, Consulting Engineer, 15 William Street, New York, and at the offices of the "Engineering News," Monadnock Block, Chicago, and New York.

The lowest or any tender will not necessarily be accepted.

(By order) P. S. HAY,
Engineer-in-Chief.

Public Works Office, Wellington, New Zealand, April 18, 1906. 22-5t

PAVING.

Glens Falls, N. Y.

The Village of Glens Falls, New York, will let about 12,000 yards of Asphalt pavement on Ridge and Notre Dame Sts., and about 10,000 yards of asphalt or Beveled Vitrified paving Blocks on Warren St., on July 2d, 1906.

25-2t WM. M. CAMERON, Clerk.

FREE!

This Valuable Compilation

of tables, facts and formulas will greatly assist in solving the problems incident to friction gearing.

We are the largest manufacturers of

PAPER & IRON FRICTIONS AND PAPER PULLEYS

The Rockwood equipment is better and more satisfactory than any other kind or make. Let us show you why there is a crying demand for it in your factory.

The Rockwood Text Book on the whole subject will be gladly sent free to those who need it. State occupation and firm with which you are connected.

The Rockwood Mfg. Co.
1909 English Ave.
Indianapolis, Ind., U. S. A.

DEPARTMENT OF THE INTERIOR, Washington, D. C., May 29, 1906.—Sealed proposals will be received at the office of the United States Reclamation Service, Billings, Montana, until 2 o'clock p. m., July 10, 1906, for the construction of the Corbett Dam, a reinforced concrete structure, located on the Shoshone River about 8 miles northeast of Cody, Wyoming. The structure will require about 10,000 cubic yards of excavation, 5,000 cubic yards of concrete, 9,000 cubic yards of earth and gravel embankment and the placing of 250,000 pounds of steel reinforcement. Particulars may be obtained from the Chief Engineer of the Reclamation Service, Washington, D. C., or from the Project Engineer, Cody, Wyoming. E. A. HITCHCOCK, Secretary. 23-4t

U. S. ENGINEER OFFICE, Jones Building, Detroit, Mich., June 11, 1906.—Sealed proposals for dredging Shoal 28 in Mud Lake, St. Marys River, Mich., will be received at this office until 2 p. m., July 11, 1906, and then publicly opened. Information furnished on application. CHAS. E. L. B. DAVIS, Col. Engrs. 24-4t

DEPARTMENT OF THE INTERIOR, Washington, D. C., June 4, 1906.—Sealed proposals will be received at the office of the United States Reclamation Service, Williston, North Dakota, until 10 o'clock a. m., July 9, 1906, for the installation of steam and electric pumping plants, and electric generating and transmission apparatus, including three pumping stations containing centrifugal pumps of 20 and 30 cubic feet per second capacity under heads of from 30 to 50 feet, driven by steam engines and electric motors aggregating 1,200 horsepower; also two 300-KW. steam turbine generating units, a 1,000 horsepower boiler plant and accessories, the necessary buildings and 3-mile transmission line, located in the vicinity of Williston, N. D. Particulars may be obtained from the Chief Engineer, U. S. Reclamation Service, Washington, D. C., or from H. A. Storrs, Electrical Engineer, Williston, N. D.

E. A. HITCHCOCK,
23-4t Secretary.

DEPARTMENT OF THE INTERIOR, Washington, D. C., June 14, 1906.—Sealed proposals will be received at the office of the United States Reclamation Service, 876 Federal Building, Chicago, Ill., until 10 o'clock a. m., July 7, 1906, for furnishing 45,000 barrels of Portland cement, or any part thereof, f. o. b. cars at bidder's mill. Particulars may be obtained by application to the Chief Engineer of the Reclamation Service, Washington, D. C. E. A. HITCHCOCK, Secretary. 25-2t

STEEL BRIDGE.

Brandon, Manitoba.

Sealed tenders will be received by the City of Brandon, for the construction of a steel bridge for Highway and Electric Railway Traffic, across the Assiniboine River on 18th Street.

The bridge will consist of two 105 feet spans on concrete piers.

Tenders will be received until 6 o'clock P. M. of Friday, July 13, 1906.

A certified cheque on some chartered Bank of Canada, or cash deposit, equal to 5% of the amount of the tender must accompany each tender as security for entering into a contract and for carrying out the contract. Tenderers must submit plans and specification with tender.

Plans of piers and all necessary information for tendering may be obtained on application to the undersigned, or The Engineering News.

The City Council does not bind itself to accept the lowest or any tender.

W. H. SHILLINGLAW,
24-3t City Engineer.

Specifications are on file at office of Engineering News, New York.

A. S. BROWN, Jr.

Contractors' Bonds
AND
Liability Insurance

A SPECIALTY

85 Water Street, Boston, Mass.

General Agent
Metropolitan Surety Co. of N. Y.

For other Proposal Advertisements see pages 51, 52, 53, 54, 56, of Advertisements, and Construction News page 250.

TRENCH MACHINES

We Sell and Lease All Kinds of
Hoisting and Conveying Machines for Trench Work

Catalogue Sent Upon Request

CARSON TRENCH MACHINE CO., Boston, U. S. A.

BRANCH OFFICES
10 Barclay St., NEW YORK Park Bldg., CLEVELAND 299 St. James St., MONTREAL

SEWERS.

Norfolk, Nebr.

Sealed proposals will be received by the undersigned at his office up to five o'clock Friday P. M., June 29th, and will be publicly opened at the City Council session to be held on the evening of said day. Said proposals to cover material and labor for the complete construction of the main sewer system of the City of Norfolk, Nebraska, as per plans, profiles and specifications prepared by Andrew Rosewater, Consulting Engineer, and on file in the City Clerk's office. The following being an approximate abstract of the same:

865 lineal feet, more or less, of Standard 12-inch clay pipe.

5,780 lineal feet, more or less, of Standard 15-inch clay pipe.

4,900 lineal feet, more or less, of Standard 18-inch clay pipe.

4,800 lineal feet, more or less, of Standard 21-inch clay pipe.

or their equivalent in brick or concrete as per plans on file.

36 manholes, more or less, of brick or concrete, average depth, 8 feet.

8,000 feet, more or less, of 4-inch drain tile laid in trenches where required.

8,000 feet, more or less, of 6-in. drain tile laid in trenches where required.

14,000 lbs., more or less, of cast-iron covers.

100 cubic yards, more or less of broken stone placed in the work.

100 cubic yards, more or less, of gravel placed in the work.

100 cubic yards, more or less, of concrete placed in the work.

5,000 cubic yards, more or less, of grading.

30,000 feet, more or less, B.M. of pine lumber left in the work.

The city reserves the right to reject any and all bids or parts of bids, and to waive any defects.

Each proposal on the above must be accompanied with a cash deposit, or a certified check on a local bank, payable to the City Treasurer of Norfolk, in the amount of ($500.00) Five Hundred Dollars, as liquidated damages, to be forfeited to the City of Norfolk if the bidder, being declared the lowest bidder and awarded the contract, shall fail to enter into contract with the City of Norfolk within ten (10) days of said award, for the construction of said sewers and appurtenances under the specifications and in accordance with the plans; otherwise said deposit shall be returned to each successful bidder.

JULIUS HULFF,
25-2t City Clerk.

CEMENT.

Columbus, Ohio.

Sealed proposals will be received at the office of this Board, until 12 o'clock, noon, of July 12, 1906, and then opened, for the delivery of Portland Cement, as follows:

12,000 barrels to be delivered at Akron, O.
1,700 barrels to be delivered at Coshocton, O.
3,000 barrels to be delivered in carload lots at railway stations between Middletown and Lockland, O.
2,500 barrels to be delivered at Defiance, O.
1,600 barrels to be delivered at St. Marys, O.
1,000 barrels to be delivered at Spencerville, O.

Particulars may be obtained from the Chief Engineer of Public Works, Columbus, Ohio.

25-3t CHAS. E. PERKINS,
Chief Engineer, Public Works of Ohio.

LEVELLING.

Famagusto, Cyprus.

Tenders are invited for the leveling of one square mile of sand hills to the north of Famagusta harbor, Cyprus, by means of shovelers, scrapers or light railways. The Anglo-Egyptian Land Allotment Company, which invites the tenders is prepared to purchase at a price fixed beforehand, the plant after the work is finished, if accord become to with an offerer. Offers to be handed in to

B. G. AMIRAYAN, Esq.,
Manager Cyprus Agricultural Bank,
23-4t Famagusta, Cyprus.

MUNICIPAL FUEL GAS PLANT.

Village of Winnetka, Ill.

Bids will be received at the office of the Supt. of Public Works of the Village of Winnetka, on or before 5 P. M. of the 2d day of July, 1906, for the installation of a Fuel Gas Plant, on the basis of the following general specifications:

The capacity of the plant shall be three million cubic feet per month, estimated on the basis of 600 heat units.

The design shall be such that the plant can be enlarged and extended without remodeling.

All necessary building shall be included and shall be of brick with steel roof, and built in the most substantial manner.

All foundations shall be included.

All machinery and apparatus necessary for the complete plant in operation shall be included, except the pipe main, which will be furnished by the Village.

State detailed cost of producing the gas and placing it in the holder per thousand cubic feet, including maintenance of plant with an output of one million, two million and three million cubic feet per month.

State heat units and efficiency of the gas, both for fuel and explosive engines—light not considered.

State whether transmitted under high or low pressure, and what.

State size of main necessary to deliver entire output to a point one mile distant from plant—¾ of which output will be delivered between the hours of five and ten P. M. If you will use an auxiliary storage tank at the end of said main include the same in your bid and specifications.

If you supply service reducers, state cost of same.

Bids must be accompanied by full specifications and plans of the particular process and apparatus.

In considering bids, cost in the holder, cost of maintenance, heat units and efficiency, simplicity of operation and by-products, will be important factors.

The right to reject any or all bids is reserved.

F. E. HERDMAN,
25-2t Supt. of Public Works.

REBUILDING LOCKS, DAMS, ETC.

Columbus, Ohio.

Sealed proposals will be received at the Office of the State Board of Public Works, Columbus, Ohio, until 12 o'clock, noon, of July 12, 1906, and then publicly opened, for the rebuilding of 21 locks on the Ohio Canal in and near the City of Akron, Ohio, together with other minor structures on the same sections.

Also, at the same time and place, for rebuilding Lock No. 16, at Trenton, Tuscarawas County, Ohio.

Also, on July 19, for the construction of a concrete dam on the Walhonding River, six miles west of Roscoe, Ohio.

Also, on July 19, for the dredging of the Walhonding feeder from Roscoe to Six Mile Dam.

Also, for 100,000 feet B. M. lumber for lock gates and sheeting plank.

Plans and specifications for the above work will be on file on and after July 2, 1906, at the Office of Chief Engineer of Public Works at Columbus, Ohio, and at the Office of the Engineer of Improvement of Ohio Canal at Akron, Ohio, and Coshocton, Ohio, where information may be obtained relative to quantities, bonds and blanks for proposals.

CHAS. E. PERKINS,
Chief Engineer.
By order of Board of Public Works. 25-3t

DEPARTMENT OF THE INTERIOR, Washington, D. C., June 15, 1906.—Sealed proposals will be received at the office of the engineer, United States Reclamation Service, Billings, Montana, until 2 o'clock p. m., July 24, 1906, for furnishing about 405,000 pounds of steel bars for reinforcement of concrete. Particulars may be obtained by application to the Chief Engineer of the Reclamation Service, U. S. Geological Survey, Washington, D. C., or to the Engineer, Cody, Wyoming. E. A. HITCHCOCK, Secretary. 25-3t

ROAD WORK.

Paulsboro, N. J.

Bids will be received by Committee of Streets and Highways, of the Borough of Paulsboro, N. J., Tuesday evening, July 3, 1906, for the purpose of building stone road in accordance with plans and specifications now on file in office of Borough Engineer Wm. C. Carter, Woodbury, N. J.

The Mayor of Paulsboro will consider bids for a Bitulithic Street from any responsible bidder.

CHAS. M. GWILLIAM,
24-3t Borough Clerk.

CONCRETE DAM AND PIERS.

Lancaster, Pa.

Sealed proposals will be received by the Water Committee of Lancaster, Pa., at the office of the City Controller, until 12 o'clock noon, Thursday, July 19th, 1906, for building concrete dam and piers at the pumping station.

Plans and specifications can be obtained at the office of the Engineer, F. H. Shaw, 503 Woolworth Building, or at the office of the committee, City Hall.

Each proposal must be accompanied by a certified check for the sum of five per cent. of the amount of the bid, payable to the City of Lancaster.

The committee reserves the right to reject any or all bids.

J. H. RATHFON,
City Controller.
JOHN A. LEINBACH,
25-2t Clerk Water Committee.

WATER-WORKS.

Trinidad, Colo.

Sealed proposals will be received by the City Clerk, City of Trinidad, Colorado, at his office in the City Hall, until two o'clock P. M., July the second, 1906, for furnishing all material and appliances and the furnishing of all labor and tools necessary to construct twenty-four (24) miles of pipe line or conduit for the purpose of extending the City's water supply.

INSTRUCTIONS.

Bids will be received for a complete line constructed entirely of cast-iron, steel, wood or reinforced concrete, furnishing all material and labor.

Bids will be received for furnishing all the pipe, specials and material, f. o. b. Trinidad, Colorado.

Labor and material bid for must be separately stated in the bid.

Bidders must furnish satisfactory evidence of their ability and experience to furnish, deliver, and construct work of the character bid upon in their proposal.

Bidders must use printed forms, as no other will be accepted.

Bidders will be furnished specifications, form of proposal, contract and bond, and such information as to the plan and profile, upon application to the Chief Engineer of the Water-Works Extension, Rooms 9-10, Colorado Building, Trinidad, Colorado. Each proposal must be accompanied by a certified check of two thousand dollars ($2,000), made payable to the City Treasurer, as a guarantee that the successful bidder will furnish satisfactory bond, and enter into contract with the City within ten days from receiving notice of acceptance.

All bids rejected will have certified checks promptly returned. The City reserves the right to reject any or all bids or to accept any bid that may be to the interest of the city.

I. D. MILLIKEN,
25-2t City Clerk.

CONCRETE SEWERS.

Lancaster, Pa.

Sealed proposals will be received by the Special Sewerage Commission of Lancaster, Pa., at the office of the City Controller, until 12 o'clock, noon, Tuesday, July 19, 1906, for building about 3,600 feet of 108-inch reinforced concrete sewer and appurtenances.

Plans and specifications can be obtained at the office of the Engineer, F. H. Shaw, 503 Woolworth Building, or at the office of the clerk of the commission, 40 North Duke Street.

Each proposal must be accompanied by a certified check for the sum of five per cent. of the amount of the bid payable to the City of Lancaster. The Commission reserves the right to reject any or all bids.

J. H. RATHFON,
City Controller.
CHAS. G. BAKER,
Clerk Special Sewerage Commission. 25-2t

U. S. ENGINEER OFFICE, Boston, Mass., June 19, 1906.—Sealed proposals for dredging in Fort Point Channel, Boston Harbor, Mass., will be received here until 12 M., July 19, 1906, and then publicly opened. Information on application. EDW. BURR, Maj., Engrs. 25-4t

The Genasco Roofing Company builds the best roofs from the best of all roofing materials—Trinidad Lake Asphalt, the standard by which all others are compared.

We are not architects and don't try to tell architects their business. We are roofers and are glad to tell architects what we know when we are asked.

We do only high-class work; we use the best materials in the world—natural asphalt; our business is large; mechanics the most skilled; and prices as low as consistent with the character of the work. The difference in price between asphalt and coal-tar roofs is really inconsiderable.

Write for information about Genasco Positive Seal Felt, the logical and common-sense roofing material. Let us furnish preliminary estimate.

THE GENASCO ROOFING COMPANY
PHILADELPHIA
New York Chicago
Offices in principal cities

For information about Genasco Ready Roofing send for Genasco Book F to Barber Asphalt Paving Company, Philadelphia, New York or Chicago.

GRADING, CURBING AND PAVING.

Salt Lake City, Utah, June 15, 1906.

Sealed proposals will be received at this office until 11 o'clock a. m. Friday, July 6th, 1906, for the work of grading, curbing and paving Second South Street from Third East Street to Tenth East Street.

The approximate quantities of work to be done are as follows:

Grading ..... 20,000 cubic yards
Curbing ..... 11,500 linear feet
Asphalt pavement ..... 38,000 square yards

Instructions to bidders, together with specifications and forms for contract and bond can be obtained upon application at the office of the Board of Public Works or City Engineer.

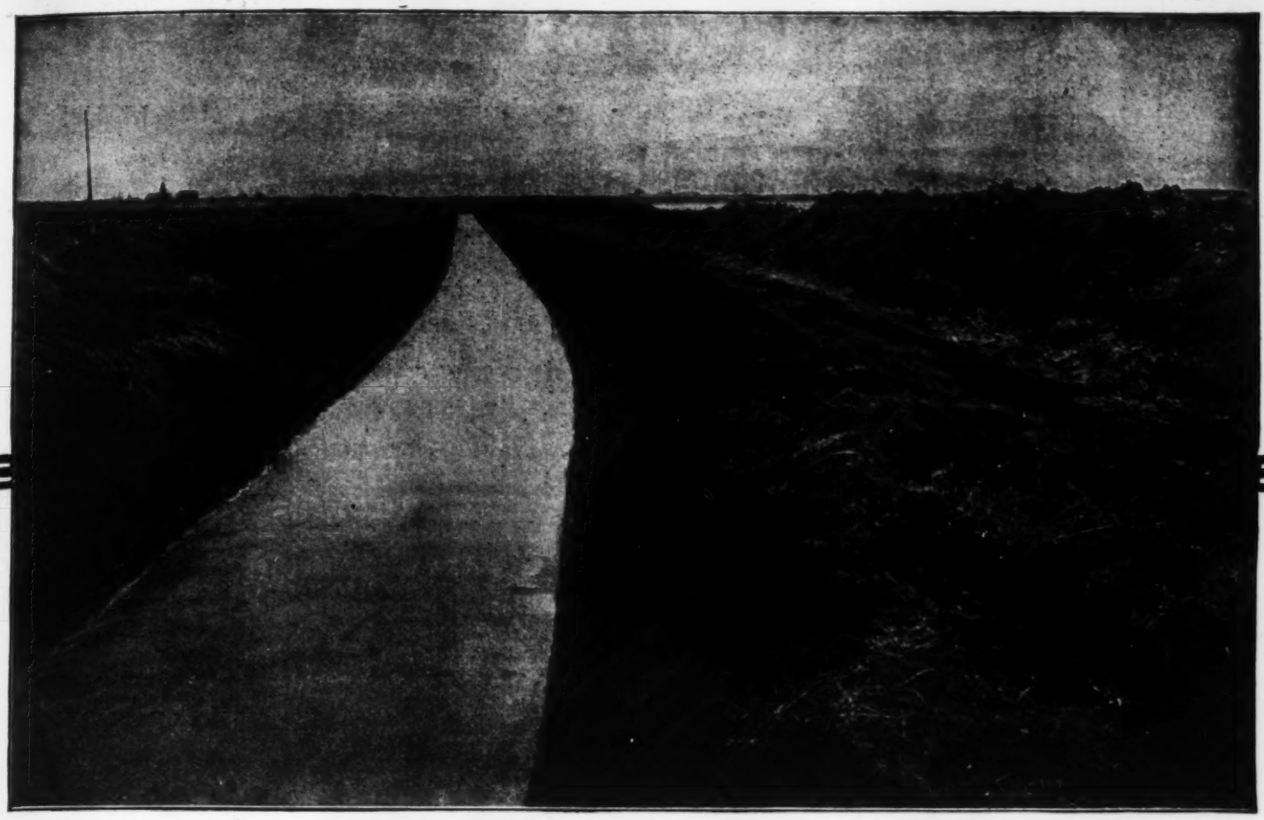
The right is reserved to reject any and all bids.

By order of the Board of Public Works.
F. J. LEONARD,
Chairman.
LOUIS C. KELSEY,
City Engineer. 25-2t

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., June 12, 1906.—Sealed proposals will be received at this office until 3 o'clock P. M., on the 17th day of July, 1906, and then opened, for the installation of a conduit and wiring system for the U. S. Post Office, Court House and Custom House at Laredo, Texas, in accordance with drawings and specification, copies of which may be had at this office, or at the office of the Superintendent of Construction, Laredo, Texas, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 25-2t

U. S. ENGINEER OFFICE, Mobile, Ala., June 16, 1906.—Sealed proposals for dredging in Harbor at Biloxi, Miss., will be received here until noon, July 16, 1906, and then publicly opened. Information furnished on application. J. B. CAVANAUGH, Capt., Engrs. 25-4t

For other Proposal Advertisements see pages 51, 52, 53, 54, 56, of Advertisements, and Construction News page 250.



Contractors Wanted

We desire all contractors wanting work in the line of land reclamation to write us.

We are in constant touch with ditching projects, concerning which we have full information, which can be handled in no other way so successfully as with the Austin Drainage Excavator.

Land Reclamation is Revolutionized
With the Austin Drainage Excavator

There are nearly 100,000,000 acres of wholly unproductive swamp lands besides many million acres of arid lands in this country which can be reclaimed at small cost with this machine, and which will become the garden spots of the country.

It constructs a ditch perfectly true to grade, of practically any depth, width of bottom or width of top desired, slopes the banks to any angle and delivers the waste banks at a distance from the ditch, producing a wide berm, and accomplishes the entire work at a single operation.

It removes every particle of loose earth from the ditch and trues the banks to exact specifications without disturbing the original strata of earth in the banks.

It constructs a scientifically correct and permanent water-way, built to conform to nature's laws and immeasurably superior to any other style of construction.

Once its merits are known, no other style of ditch building can successfully compete with this machine.

Address Department C.

F. C. Austin Drainage Excavator Company

General Offices, Railway Exchange, Chicago, U. S. A.

New York Office, 150 Nassau Street

CHEAPEST GRADING METHOD ON EARTH

Does Work for One-half Cost by Any Other Method

Cut shows 6-yard **BAGLEY GRADER** on an 800-foot haul moving over [illegible] cubic yards per day at a cost of less than 4 cents per yard. The point at which s[illegible] is shown is on a 7-foot fill, and scraper is making its return trip having delivered its [illegible] If possible allow us from two to four weeks for delivery. Address nearest office g[illegible] particulars.

F. G. HARPER, GENERAL AGENT
813 First National Bank Building, Chicago

Bagley Grader Compa[illegible]
Tacoma
Wash.

SEWERS AND PAVING.

Fort Smith, Arkansas.

Sealed proposals will be received by the Board of Improvement for Sewer District No. 2 and Paving District No. 5, at their office in Fort Smith, Arkansas, until 2 o'clock P. M., July 18, 1906, for furnishing the necessary labor and materials to construct storm and sanitary sewers in said Sewer District No. 2, and also to construct the brick pavement for said Paving District No. 5.

Said work and improvement to be made in accordance with plans, profiles and specifications therefor, which will be on file and ready for inspection, at the office of said Board, on and after July 1st.

The approximate quantities of the work upon which bids will be considered are as follows:

Brick pavement, 650,000 square yards.
Concrete or brick sewer, 11' 9" to 8' 6" in size, 8,300 lineal feet.
Concrete or brick sewer, 8' 0" to 6' 6" in size, 6,000 lineal feet.
Concrete or brick sewer, 6' 0" to 3' 0" in size, 22,000 lineal feet.
Vitrified pipe sewer, 36" to 6" in size, 180,000 lineal feet.
All necessary manholes, flush tanks, lamp-holes, and catch basins.

Separate proposals must be submitted for the paving and sewer work. The bid for each improvement must be accompanied by a certified check for the sum of $5,000.00, made payable to said Board of Improvement, as a guarantee that the bidder will, within ten days after the acceptance of his proposal, enter into contract and furnish satisfactory bond for the completion of the work.

The right to reject any or all bids, or to accept any bid, is reserved by said Board of Improvement.

All bidders are advised that a deposit of shale suitable for making paving brick and vitrified sewer pipe is available within the city limits, that there is also a cheap fuel for burning same, and that it is the purpose of the Board of Improvement to allow sufficient time for the erection of plant to manufacture brick and sewer pipe.

BOARD OF IMPROVEMENT,
HARRY E. KELLEY,
Chairman.

26-2t

DEEP WELL.

Jackson, Mo.

The City of Jackson, Mo., will receive bids up to July 9, 1906, for boring a deep well. Give figures on eight and on ten-inch hole for 400 feet and price for each additional hundred feet in depth. Well will be sunk along railroad. Limestone strata. Address

FRED. E. KIES,
Jackson, Mo.

26-1t

DEPARTMENT OF THE INTERIOR. Washington, D. C., June 7, 1906.—Sealed proposals will be received at the office of the Reclamation Service, 876 Federal Building, Chicago, Illinois, until 2 o'clock p. m., July 6, 1906, and thereafter opened, for the construction of deep and shallow wells, suction pipes, pumping stations, siphons, concrete lined conduits, and fencing. Particulars may be obtained by application to the Chief Engineer of the Reclamation Service, Washington, D. C., or to the Engineer, Garden City, Kansas. E. A. HITCHCOCK, Secretary. 24-3t

SEWAGE PUMPING MACHINERY.

Framingham, Mass.

Sealed proposals will be received by the Sewer Committee of the Town of Framingham, Massachusetts, until eight o'clock Monday evening, July 16th, 1906, for the construction, erection, operation and testing of pumping machinery of 3,000,000 gallons capacity in 24 hours, in accordance with specifications and form of contract to be furnished upon application.

Specifications, form of proposal and contract may be obtained at the office of the Sewer Committee, South Framingham.

All proposals must be made on blank form furnished by the Sewer Committee, and must give the price proposed both in words and figures, signed by the bidder with full name and address, and endorsed "Proposals for Furnishing Pumping Machinery."

Bids must be accompanied by a certified check for the sum of five hundred dollars ($500.00), payable to the Treasurer of the Town of Framingham, Massachusetts.

Security for the faithful performance of the contract under the specifications will be required in a sum not less than one-fourth (¼) of the amount of the contract. This must be in the form of a bond of some surety company satisfactory to the said Sewer Committee.

The person or persons to whom this contract may be awarded must attend at the office of the Sewer Committee with the sureties offered by him (or them) within six days (Sundays excepted) after the date of the notification by the Sewer Committee of the acceptance of his proposal, and the[illegible] contract in duplicate for the work. [illegible] case of failure so to do, he or they will [illegible] sidered as having abandoned the [illegible] and the certified check accompanying his [illegible] posal shall be forfeited to the Town of [illegible] ming-ham.

The Sewer Committee reserves the [illegible] ht to reject any and all bids that may be [illegible] fered, and to accept any bid that may be [illegible] ed.

FRANK W. MESERVE,
JAMES R. ENTWISTLE,
FREDERICK E. BARRE[illegible],
Sewer Committee, Town of Fram[illegible]ham,
Massachusetts.

26-1t

OFFICE COMMISSIONERS DISTRICT OF COLUMBIA, Washington, June 23, 1906.—Sealed proposals will be received at the office until 12 m., July 7, 1906, for cell work and all plumbing above the first floor for the East Wing, Workhouse for Males, Washington Asylum Grounds. Forms, specifications and all necessary information may be obtained at this office. HENRY B. F. MACFARLAND, JOHN BIDDLE, Commissioners, D. C. 26-1t

PROPOSALS.—Fort Monroe, Va., June 12, 1906.—Sealed proposals, in triplicate, for furnishing and installing wire door and window screens in 30 sets Bachelor Quarters, 3 double sets officer's quarters, the Post Exchange and Gymnasium Building, 7 double sets non-commissioned officer's quarters, the Q. M. Office and Commissary Storehouse at Fort Monroe, will be received at the Office of the Constructing Quartermaster until noon, June 29, 1906. The United States reserves the right to accept or reject any or all proposals or any part thereof. Information furnished on application. Bids should be plainly marked as such on the envelope or outside wrapper. Address CAPTAIN R. H. C. KELTON, Q. M. 25-2t

JUST PUBLISHED

City Roads and Pavements

Suited for Cities of Moderate Size

By WILLIAM PIERSON JUDSON

Third edition, revised and brought thoroughly up-to-date

This edition has been prepared in response to the continued call for the book as a guide to the building of rural highways as well as of city pavements

SOME COMMENTS ON THE SECOND EDITION

N. Y. TRIBUNE—"The work goes into the details of street construction and maintenance, including cost and materials, and shows a comprehensive knowledge and understanding of the subject."

MUNICIPAL JOURNAL—"A handy volume of fine appearance, which will be of interest and value to municipal officials and to all who are interested in road construction."

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Descriptive Circular on Application

Cloth, 6 x 9 inches, 197 pages, 69 illustrations
Price, $2.00 net

The Engineering News Publishing Company
220 Broadway, New York

The Original Old Style Method

of making Terne Plates was known as the MF PROCESS, because MF Roofing Tin was the first practical metal-roof-covering ever made. The process is the same to-day as it was then, and the plates are just as even in gauge, thoroughly coated and easily worked. Therefore, when a property owner or roofer specifies MF Ternes, he can rest assured he is getting the best to be had.

When ordering, keep in mind the fact that the MF Process is the oldest Old Style Process in existence, and that MF Roofing Tin cannot be excelled, regardless of how long you search. Write for our booklet "From Underfoot to Overhead"—it's interesting, and costs you nothing.

MF

AMERICAN SHEET & TIN PLATE COMPANY

FRICK BUILDING PITTSBURGH, PA.

The best place for rest or recreation or recuperation at this season is

ATLANTIC CITY

and the new Fireproof

CHALFONTE

is especially well equipped to supply the wants of those who come to secure them

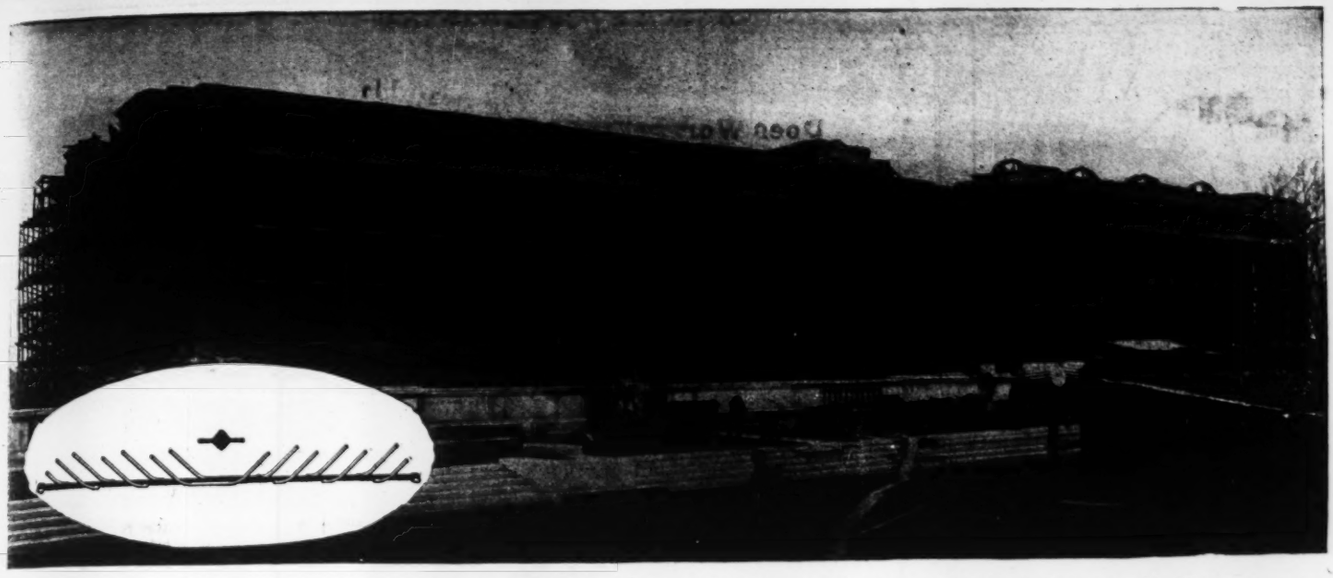
Write for Illustrated Folder and Rates to

THE LEEDS COMPANY

ALWAYS OPEN ON THE BEACH

25-10t

For other Proposal Advertisements see pages 51, 52, 53, 54, 56, of Advertisements, and Construction News page 250.



U. S. War College, Washington, D. C. One of a group of United States Government Buildings constructed throughout by the Kahn System of Reinforced Concrete.

"NOTE THAT BAR"

its use means buildings that endure—buildings that possess the greatest degree of resistance against earthquake, fire and the ravage of time.

In the rebuilding of San Francisco as elsewhere, the Kahn System of Reinforced Concrete is making good.

Reinforced concrete grows stronger with age—is economical in first cost and saves an immense amount of time in construction. The Farwell, Ozmun, Kirk & Co. building at St. Paul, Minn., the largest warehouse in the West, with nine stories and nearly half a million square feet of floor space, was completed in six months.

The contract for the immense plant of the Pierce Automobile Co. at Buffalo, N. Y., 400 feet x 600 feet in dimensions, to be built throughout of concrete, reinforced with the Kahn Trussed Bar, was awarded to us April 15th—the plant will be ready for occupancy August 15th. Over 750 carloads of material are required for this one job.

These are some of the things made possible by the Kahn System—back of which is a million-dollar organization and a staff of over seventy-five experienced college-graduated engineers. The Kahn System means an organization competent to handle every detail of a building with a maximum economy, maximum engineering skill and maximum speed—an organization which has produced results for others and can produce results for you. If you have an office building, factory building, hotel or other large structure to erect, write us.

Our elaborate 160-page book of "Tests" just off the press, sent upon request.

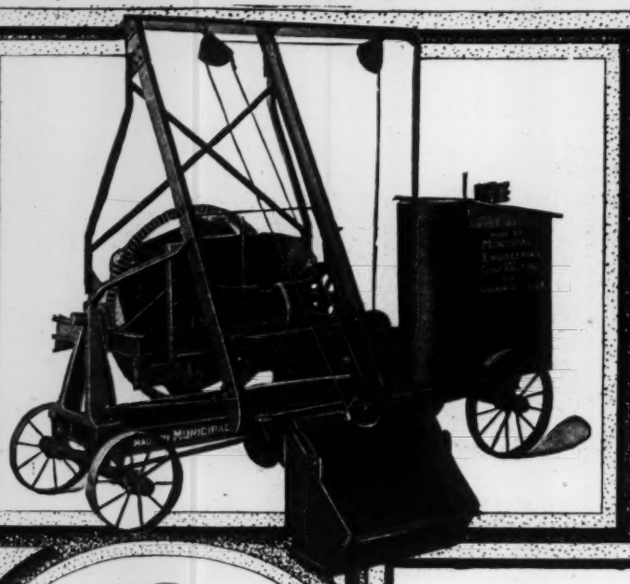
Our Bridge Circular and general information free. Ask for "Trussed Concrete Bulletin."

TRUSSED CONCRETE STEEL COMPANY

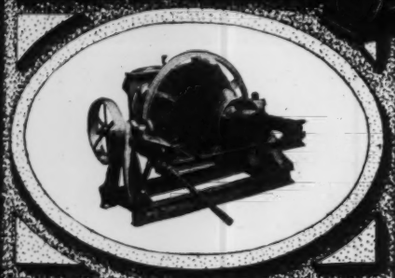
35 Congress Street

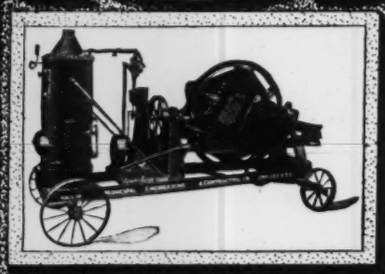
DETROIT, MICHIGAN, U. S. A.

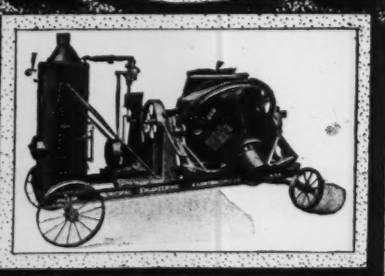
Offices in all Principal Cities



CHOOSING A CONCRETE MIXER







The Development of a Perfect Concrete Mixer

The first successful type of a batch mixer was a **cube.**

For many years government engineers would use nothing else, for the reason that no other style of mixing, either by mechanical power or manual labor, would produce a **perfect quality of concrete.**

But the old-style cube mixer must be **stopped** to **charge** and **discharge**—the quality of concrete was **perfect,** but the output was **small.**

The increasing demand for concrete impelled many manufacturers to **try** to increase the capacity of the old-style cube, and this is how they went about it.

How Some Manufacturers Tried To Beat the Cube

Notwithstanding it had been demonstrated 20 years ago that the correct method to mix **perfect** concrete or mortar was to hold an entire batch together in a single mass and give it the many **longitudinal movements** obtained in the **cube principle** of mixing, when an effort was made to increase the rapidity of the old-style cube, experimenters immediately abandoned the cube type of mixer.

Batch mixers of every conceivable form were made and filled with all sorts of scoops, shelves, paddles and blades as mixing devices, but they were made to **charge** and **discharge** with the mixer in operation and, therefore had a **larger capacity** than the old-style cube.

They imagined they had made an **improvement** when they had increased the **output,** but did not consider that the **principle** they had adopted in mixing was one of **separation.**

It was **scientifically wrong,** because, in any kind of separation, a **part** of the batch received a **greater amount** of mixing than the **remainder.**

They had, therefore, only **increased** the **capacity** at the expense of **quality.**

This is not a mere assertion, but a fact which chemical (see our Catalogue, Red Oxide of Iron Test) or tensile test will prove, as we have clearly demonstrated in these columns.

Moreover, any style of blades, scoops, shelves or paddles in the mixing chamber, pocket **ingredients** as they enter, form **balls** in the concrete, **separate** the batch so that the process of mixing is **retarded,** produce **receptacles** in which the concrete **accumulates** and **sets** and often has to be **dug out** with **picks.**

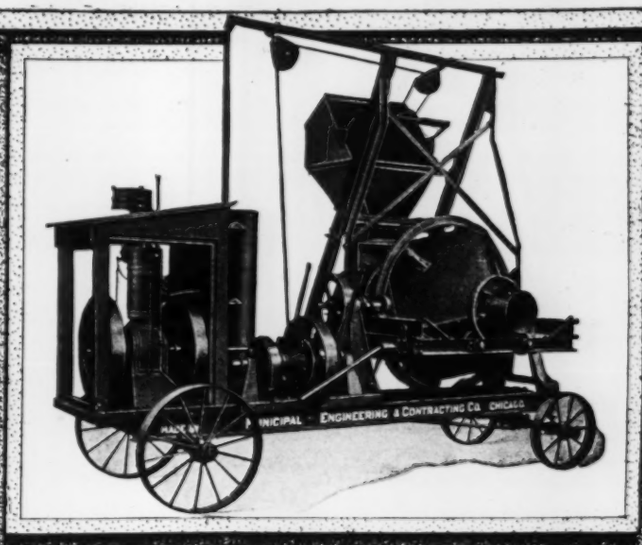
It is also obvious that the more **separators** or **obstructions** put in a mixing chamber, the **slower** will be the mixing process.

It is, therefore, **self-evident** that a batch mixer having the **largest mixing** devices, such as **many large shelves,** will **pocket** most ingredients, produce most **balls, form** most **receptacles** in which the concrete will **accumulate** and **harden, mix slowest,** and turn out the most **imperfect** concrete.

MUNICIPAL ENGINEERING AND CONTRACTING CO. CHICAGO, U.S.A.

New York Office, 150 Nassau St. New England Agents, The Dyar Supply Co., 7 Sudbury St., Boston

THE ONLY PERFECT CONCRETE MIXER



How the Municipal Engineering & Contracting Co. Improved the Cube

When the engineers of the Municipal Engineering & Contracting Co. went about improving the concrete mixer, they employed the knowledge of a quarter of a century's experience in designing and perfecting **scientifically correct** machinery, and immediately went back to the **only mixer** which would produce an **absolutely perfect** product—the **old-style cube.**

The shaft which passed through diagonal corners was taken out and the cube mounted on **trunnions** and reconstructed to **charge** from one side, while in **operation,** and **discharge** from the other.

It was made to operate by a **single** gear placed in the center, equidistant from the middle corners of the cube, requiring **less machinery,** dispensing with counterweights and, consequently, having less **friction** and propelled by less **power** than batch mixers requiring **double** gears.

Our engineers discovered that a **larger** cube could be constructed in the same frame by **rounding** the **edges** and **corners,** and that the **rapidity** of the mixing could be **increased** by inserting **breaker rods** connecting the centers of the adjacent sides, and that they would not **pocket** the material, nor would ingredients **adhere** to them.

Constructed in this improved form, at 15 revolutions a minute, the entire contents of the cube are given the **greatest possible** longitudinal movements and **broken over** the breaker rods 90 times, a more **thorough** mixing than is possible to obtain by any other method.

We found that it required an **enormous** amount of power to dump a batch mixer of large capacity and, therefore, invented an **automatic power dumping device,** operated entirely by the **same** power which propels the mixer. **No other batch mixer has this feature.**

A large part of the work in operating a mechanical mixer has been the **elevating** of the materials to the **charging** hopper. To accomplish this, some manufacturers have constructed **cumbersome** charging devices, occupying large **ground** space, and which must be **completely dismantled** each time the machine is moved.

We built a **steel** charging elevator, supported **entirely** on the **same** truck which carries the **engine** and **mixer,** and made the machine as **portable** with the charging elevator **attached** as without it.

The bucket to this elevator loads within **14 inches** of the ground, requiring no **runways** of any kind, elevating an entire charge into the mixer at a **single operation,** and is so constructed that the materials receive a **gravity mixing in passing into the cube.**

What the Chicago Improved Cube Will Accomplish

Supplied with our **automatic charging** and **discharging** equipment, combined with the **improved construction** of the cube, the Chicago Improved Cube Concrete Mixer, **will turn out a batch of absolutely perfect concrete a minute, and maintain this record indefinitely.**

Equipped in this manner it is operated by about **half** the number of men required to perform the **same** work with **other** mixers.

There is no other concrete mixer in existence that can **successfully** compete with this machine. The quality of the concrete is **perfect.** It is the most **rapid** mixer made. It is operated with less **power** and less **labor** than any other mixer.

Sizes and mountings for every requirement.

Write for Catalogue No. **2.**

MUNICIPAL ENGINEERING AND CONTRACTING CO. CHICAGO, U.S.A.

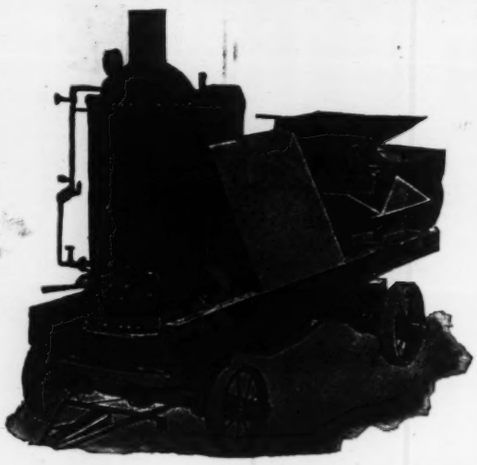
New York Office, 150 Nassau St. New England Agents, The Dyar Supply Co., 7 Sudbury St., Boston.

The Foote Portable Concrete Mixer

Automatic Measurement
Continuous Uniform Mixing
Minimum Handling of Materials
Largest Capacity with Fewest Men
Most Available Mixer for Any Work

We will put one in operation on your job under a guarantee

Write for the New Catalogue



The Traction Machine
For Street Paving Work
Moves by Its Own Power
And Requires No "Setting Up"
200 in use for this Work Alone

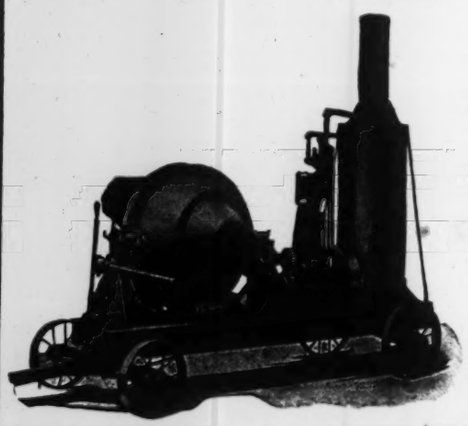
Harron, Rickard & McCone
San Francisco, Cal.

Harron, Rickard & McCone
Los Angeles, Cal.

Hallidie Machinery Co.
Seattle, Wash.

THE W. H. WILCOX CO., Sole Sales Agents, BINGHAMTON, N.Y.

One New Feature of the 1906 SMITH MIXER



In the accompanying illustration is shown the new drip ring, which is one of the improvements of the 1906 model. This flange prevents any wet material from running down the cone and causing damage in the gears.

This little improvement prolongs the life of the Mixer, which already holds the record for durability and minimum cost of repairs.

Contractors Supply and Equipment Company

Main Office: CHICAGO, Old Colony Building
NEW YORK, 170 Broadway

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ST. LOUIS, 900 Wainwright Building
ST. PAUL, 201 German-Am. Bank Building
PITTSBURG, John L. Kirk, Ferguson Building
DENVER, Boston Building
CLEVELAND, 211 St. Clair Avenue, N. E.
KANSAS CITY, MO., 509 W. 59th street
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OAKLAND, CAL., 602 Walsworth Avenue
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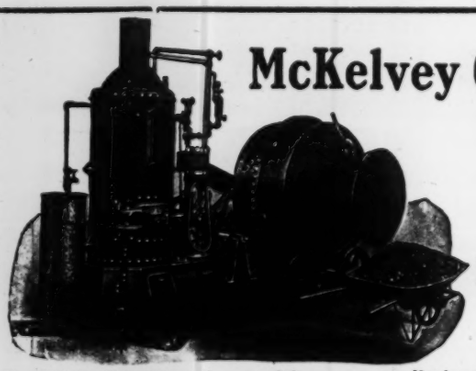
W. H. C. Hussen & Co., Montreal, Canadian Agents.

THE COST of a "WANT" Advertisement in ENGINEERING NEWS is 1½ cents a word, an insertion, for "Situations Wanted," 3 cts. a word for "Situations Open," and "Miscellaneous Wants."



McKelvey Concrete Mixers

BEFORE PLACING YOUR ORDER INVESTIGATE THE MERITS OF THE

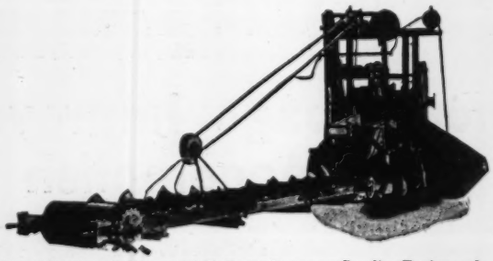
McKelvey Batch Mixer

More Points of Excellence than any Other — Headquarters for Concrete Mixers

McKELVEY CONCRETE MACHINE CO.

171 La Salle Street, Chicago, Ill., and 1215 Filbert Street, Philadelphia, Pa.
AGENTS—Good Roads Machinery Co., 136 Liberty Street, New York. Perrin, Seamans & Co., 57 Oliver Street, Boston. Emmet Jones, 329 Market Street, San Francisco. J. Jacob Shannon & Co., 1744 Market Street, Philadelphia, Pa.

Drake Concrete Mixers



Made in 30 styles with or without power

Capacities, 25 to 400 cubic yards—10 hours

Catalogue "E" on request

Portable Concrete Mixer with Delivery Conveyor, Gasoline Engine and Special Loading Device.

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BOOKS ON ANY SUBJECT in which you are interested will be sent by us, charges prepaid, upon receipt of price. THE ENGINEERING NEWS PUBLISHING CO.

HAINS CONCRETE MIXER

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SEND FOR NEW CATALOGUE

No Substitute for "Sterling" 'Barrows

"Sterling" No. 10 Wheelbarrows carry 3½ cubic feet of sloppy concrete. The demand is for the "Sterling." There is no substitute. Get Prices.

Sterling Wheelbarrow Co.
238 Oregon St.
Milwaukee, Wis.

THE ONLY WET CONCRETE 'BARROW MADE

That No. 10 "Sterling" Wheelbarrow

Medusa Water-Proof Compound

Solves the problem of making moisture-proof hollow concrete blocks

Does away with furring and lathing; plastering done direct on the blocks

Many leading block manufacturers using it in their entire output

Indispensable also for cistern and reservoir linings and all water-proof cement work

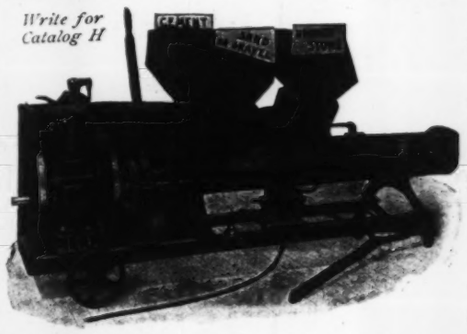
Write for pamphlet giving comparative long-time water absorption tests and testimonials

Sandusky Portland Cement Company
SANDUSKY, OHIO

6

Eureka Concrete Mixer

Write for Catalog H



Mixing of concrete by hand a thing of the past. Save money and buy the Eureka Mixer. Automatically proportions the material from one and one to one and eight. Measures crushed stone or gravel.

EUREKA MACHINE COMPANY, 426 N. Jackson St., Jackson, Mich.

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Coal Handling Machinery

Elevators and Conveyors for Various Purposes

Industrial Railways

STEAM AND ELECTRIC HOISTS

BELT CONVEYOR

EXETER BUCKET CONVEYOR

Send for Catalogue X

36-Inch Machine. Makes 7 cubic yards of concrete per hour, with a crew of four men.

Trump Concrete Measuring and Mixing Machine

Measures, moistens, and mixes *accurately*, *continuously* and *uniformly*. Other Advantages: Portability, large capacity, small amount of labor. Book No. 55, sent free on request, demonstrates *why* this machine is *best*—and *cheapest*.

The Link-Belt Engineering Co.
PHILADELPHIA

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49 Dey St.	Park Bldg.	The Link-Belt Mchy. Co.

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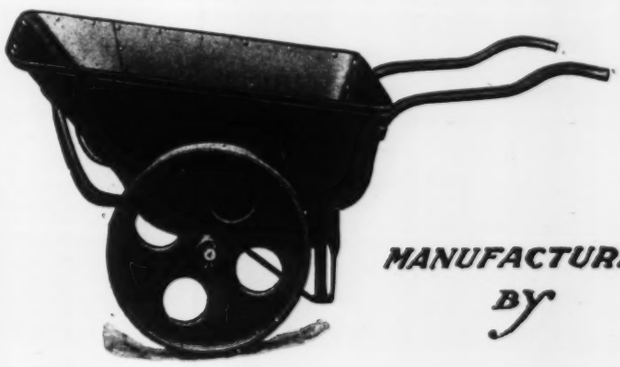

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500 Different Styles

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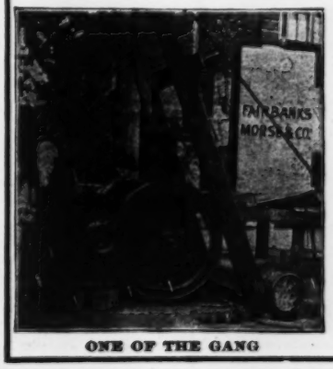

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Contractor's Hoist

Especially designed to fill a long-felt want by contractors and bridge builders for a light, portable hoist to operate derricks, elevators, conveyors and pile drivers. Engine can be instantly disconnected from hoist drum by simply throwing gears out of mesh. It is then ready to run other machines, such as:

Concrete Mixer	Air Compressor
Grind Stone	For Riveting
Pump	Chipping
Saw	Wood Framing or Boring

Send for Catalog 457-H

FAIRBANKS, MORSE & CO.
CHICAGO, ILLINOIS

THE WELLMAN-SEAVER-MORGAN CO.

WELLMAN-SEAVER-MORGAN ENGINEERING DIVISION — ENGINEERS AND MANUFACTURERS — WEBSTER, CAMP & LANE DIVISIONS

HULETT PATENT EXCAVATING BUCKET DIGGING ORE IN HOLD OF VESSEL

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for handling ore, coal, crushed limestone, sand and other loose materials. Will fill themselves full of the largest lump coal. Especially adapted for use in unloading material from limited areas, such as boats, cars, bins, etc. Extensively used on ore conveyors, stocking and rehandling bridges, locomotive cranes and revolving derricks, overhead traveling cranes, etc., in fact, can be adapted to almost any class of hoisting mechanism. Insure a great saving over hand shoveling. Built in a variety of sizes.

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TELPHERAGE

At Penna. R.R. Tunnel

Illustration shows one [illegible] Telpher Machines install[illegible] the United Engineering [illegible] Contracting Co., at Ea[illegible] Street, New York Cit[illegible] hoisting and transferrin[illegible] and dirt from the tunn[illegible] carts on the street.

Hoisting Capacity, 5 ton[illegible] at 200 feet per minute
Depth of Shaft, 125 fe[illegible]

The selection of this ma[illegible] is a strong endorsement [illegible] its value for work of such [illegible] nitude.

All Kinds of Material Can Be Transported by Telpherage

Write for booklet 53.

United Telpherage Department

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New York, 49 Dey Street — Boston, 164 Federal Street
Pittsburgh, 1501-02 Park Building — Chicago, 39th Street and Stewart Avenue
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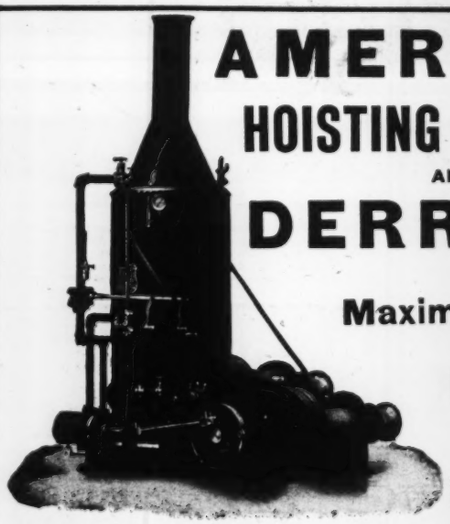
The Contractors' Plant Manufacturing Co.

131 Erie Street — Buffalo, N. Y.

DERRICKS, STEEL, WOOD OR PIPE
Jib Cranes, Derrick Irons and Contractors' Supplies
Electric, Steam, Horse and Hand Power
Hoisting Machinery
Have large stock on hand

AMERICAN HOISTING ENGINES AND DERRICKS



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Maximum Results
AT A
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COMPLETE DESCRIPTIVE CATALOGUE YOURS FOR THE ASKING

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Successors to
Rawson & Morrison Mfg. Co.

HOISTING ENGINES

FOR ALL PURPOSES

Equipped with Latest Patent Improvements

Automatic
Coal Handling Machinery
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PORTABLE HOISTING ENGINES

for all purposes, and sell them at the lowest possible price.

All Engines built on Steel Frame and with Steel Drum Barrels.

ALSO

Geared Locomotives, Derrick Cars
Derrick Irons, Hand Powers
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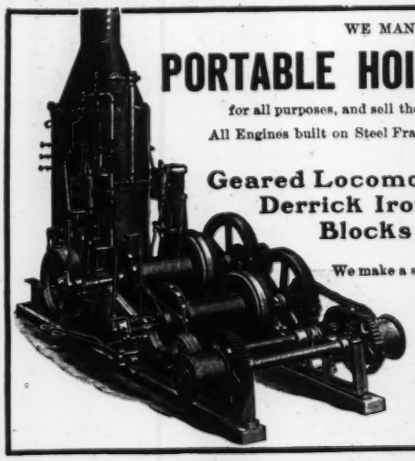

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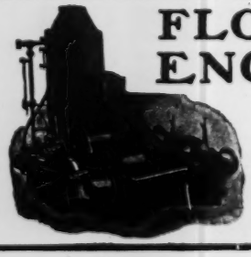

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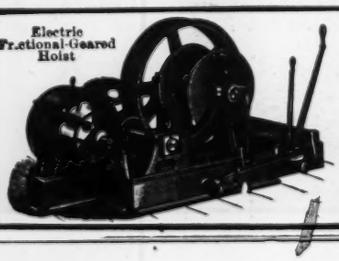
THE CUT REPRESENTS OUR SPECIAL DERRICK ENGINE



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Williamson Bros. Company
Engineers, Founders and Machinists
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Complete Installations Designed and Constructed

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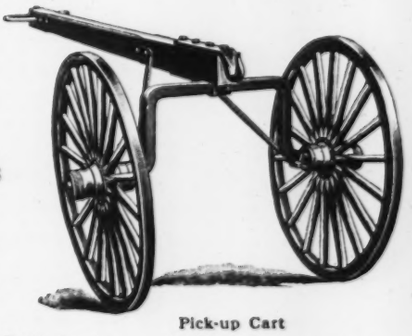
For Contractors, Quarrymen and Stone Yards

ELECTRIC, STEAM, HAND AND HORSE-POWER HOISTING MACHINERY



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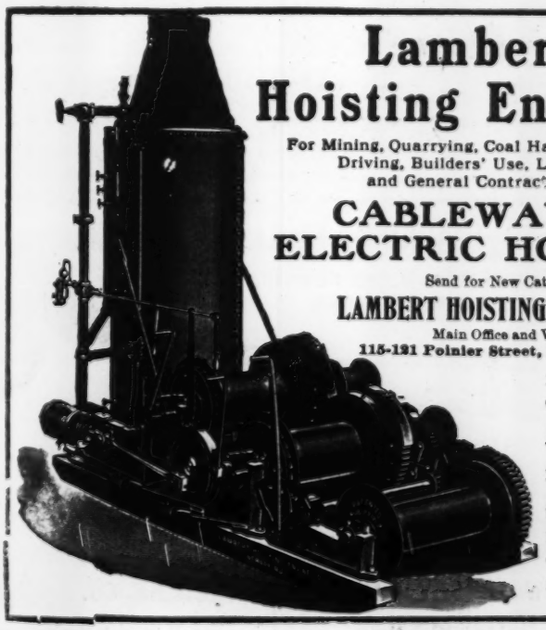

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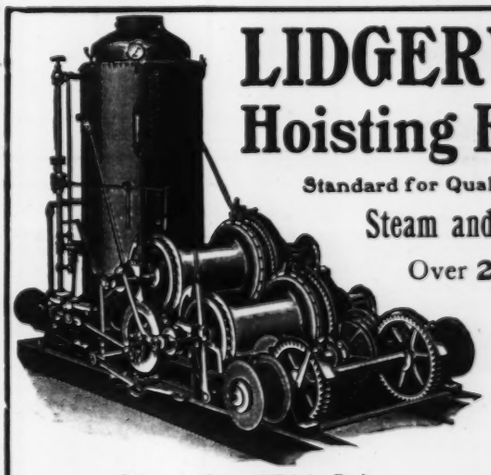

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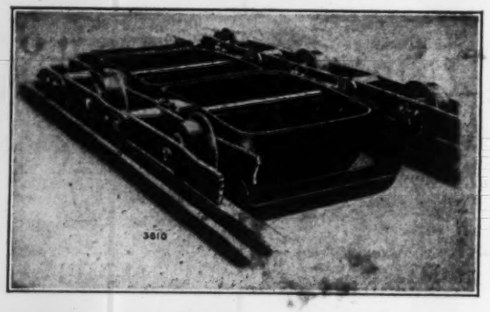

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is the only conveyor that handles coal, ashes, and other friable and gritty materials without spill. Retrievers prevent leakage.

Write for full information.

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THE ORIGINAL AND THE GENUINE

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PATENTED 1877

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when the leather belt salesman comes to sell you his belt for quarrying purposes, running a crusher or cement mill work, and he hasn't another word to say:—price, service and easy running are all against his proposition, and all in favor of GANDY and he knows it.

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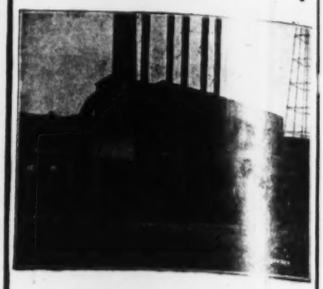
A Model Power House Equipment

EMPLOYING

Jeffrey Machinery



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Storage Hoppers with Pivoted Bucket Conveyor For Handling Coal and Ashes

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Elevating, Conveying, Power Transmitting, Crushing

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Successors to JOHN A. MEAD MFG. CO.

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We Manufacture All Kinds of

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Locomotive Cranes

and

AUTOMATIC GRAB BUCKETS

OUR SPECIALTIES

A Berquist Suspension Bunker

IS LIKE A GOLD DOLLAR

ONE HUNDRED CENTS EVERY TIME

The English government has just bought a 10,000-ton bunker for a Navy Coaling Station

For Storing Coal, Ore, etc., write me for a suggestion and an estimate

A. SAM'L BERQUIST

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OVERHEAD TRACKING, TROLLEYS AND HOISTS

Several styles to meet all conditions and requirements

The use of overhead tracking saves money. Materials are handled easily, quickly, without confusion, and seldom requires the attention of more than one man. The saving in floor space is also a large item.

There is hardly a business in the manufacturing line to which we have not sold these goods, and have never had a system prove unsatisfactory.

Catalogue 73 D

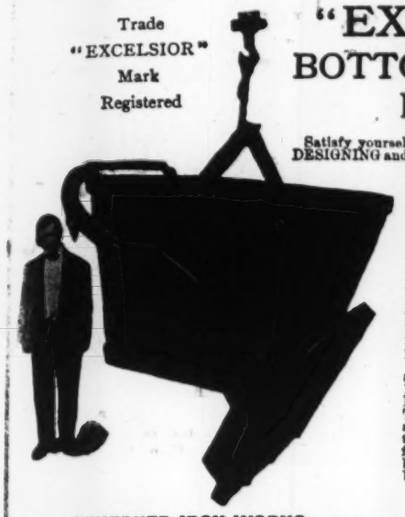
Prices are right and goods what they ought to be.

NEW JERSEY FOUNDRY & MACHINE CO.

9 and 15 Murray Street NEW YORK, N. Y.

FOR HANDLING CONCRETE AND OTHER MATERIALS YOU NEED OUR

Trade "EXCELSIOR" Mark Registered



"EXCELSIOR" BOTTOM DUMPING BUCKET

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Invented and patented last year, less than a thousand are now in use and, in every instance, are giving perfect satisfaction. The mere fact that we have received from several of the most prominent contractors, who have heretofore had in use buckets of the SPRING LOCK TYPE, third and fourth orders for the "EXCELSIOR," proves beyond a doubt that it is the most perfect of its kind of any yet produced.

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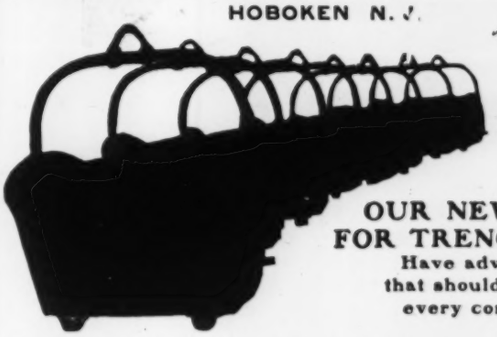

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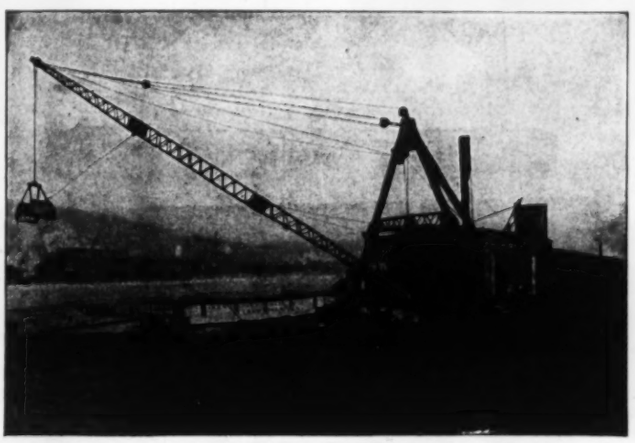

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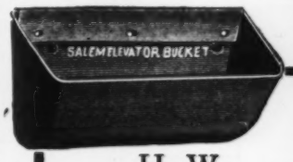

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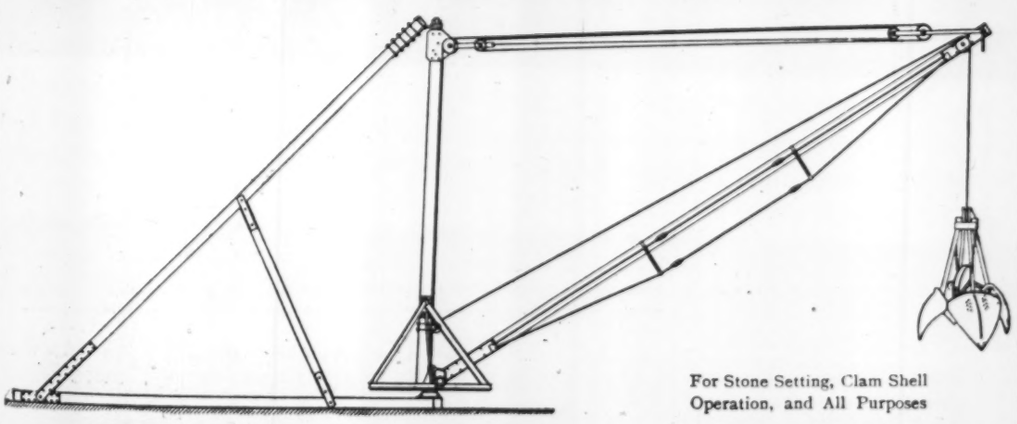
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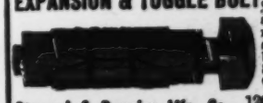
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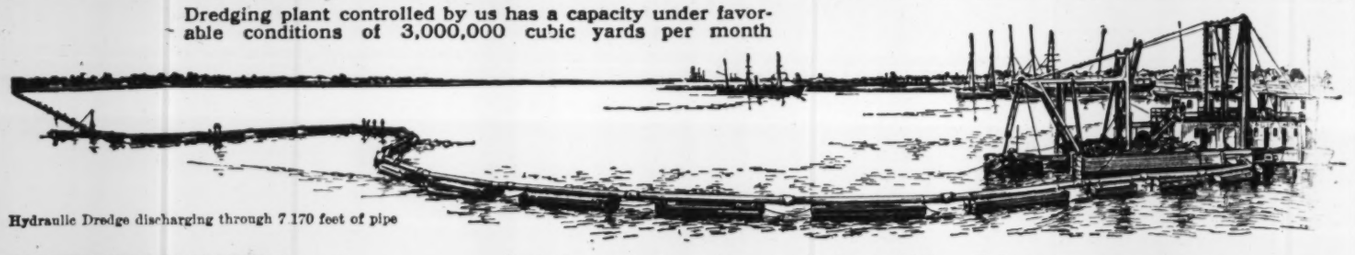

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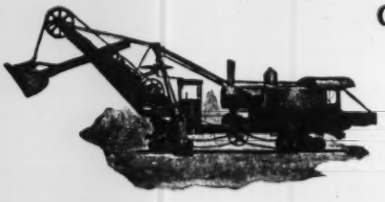

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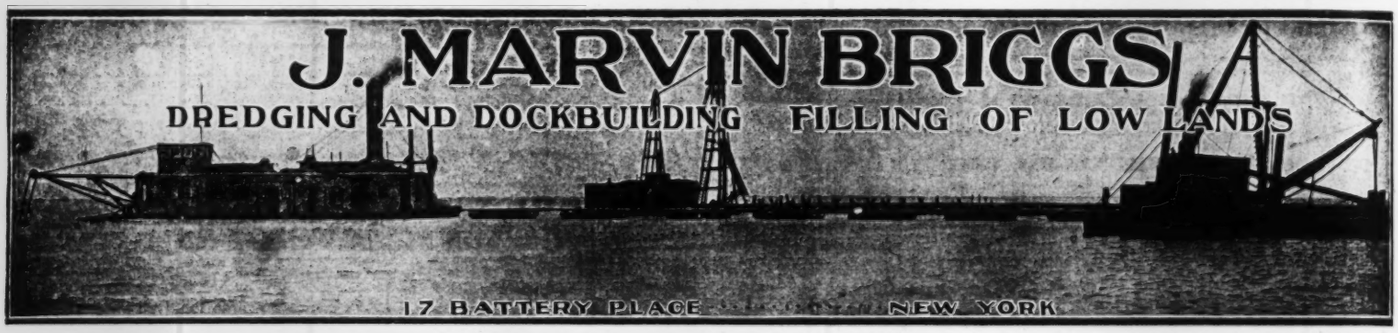

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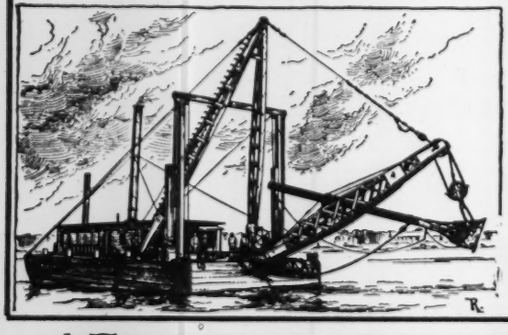

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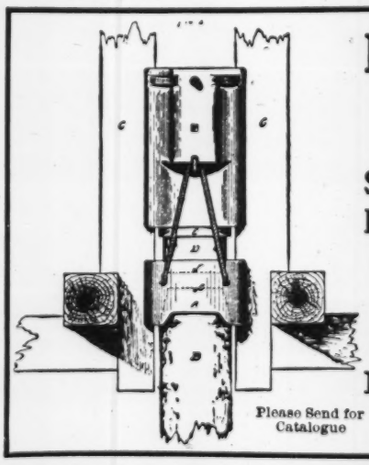

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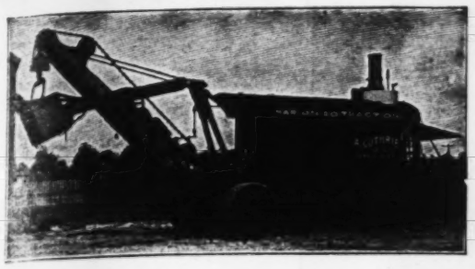

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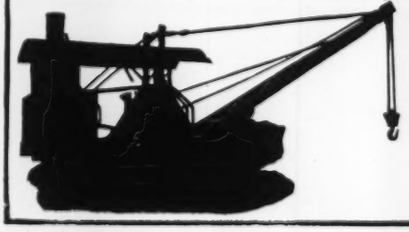

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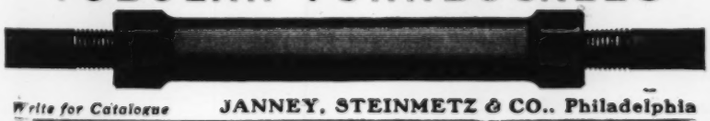

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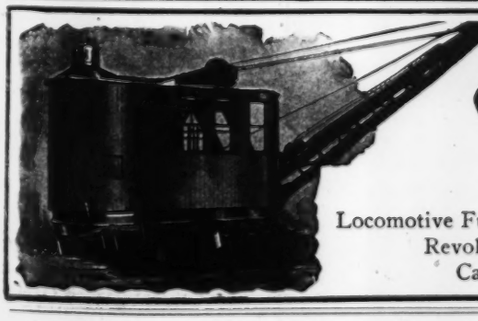

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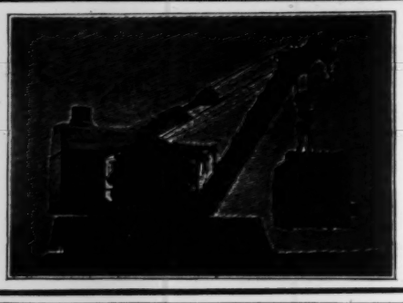

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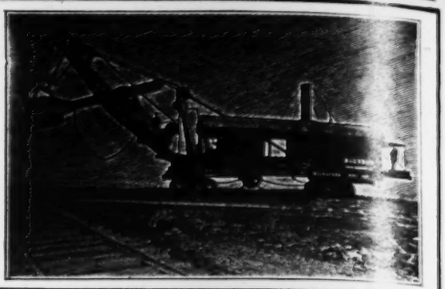

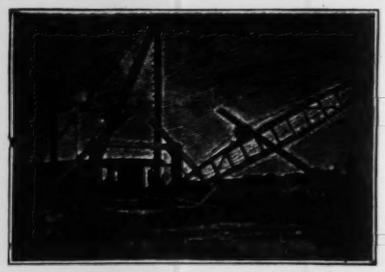

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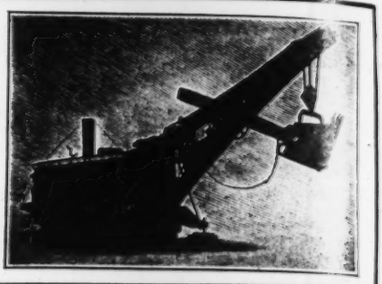

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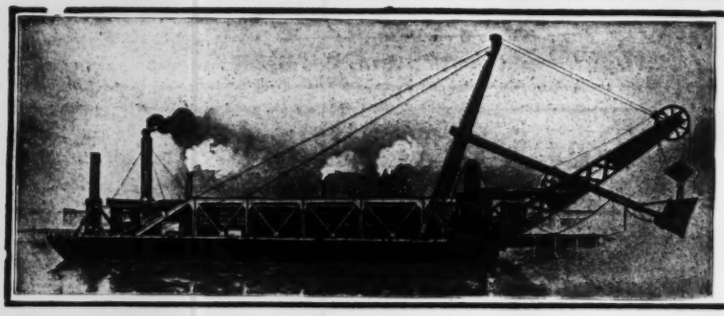

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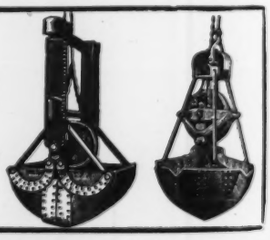

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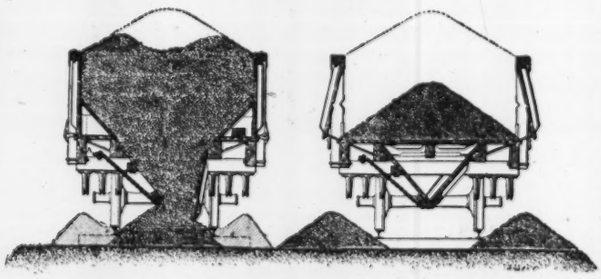

Diagonal Shading shows Position of Ballast after being spread by the Rodger Distributing Car which follows the Hopper Cars.

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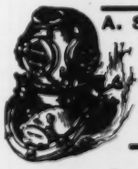

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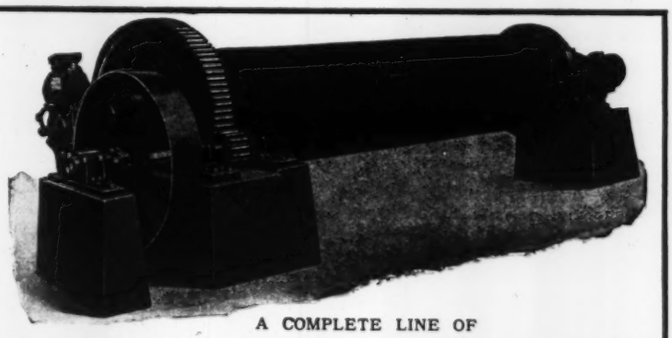

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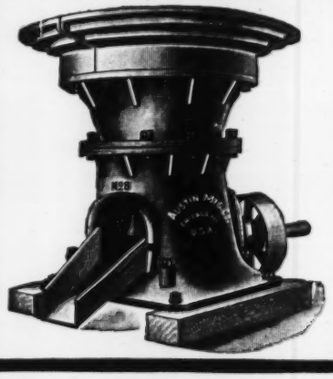

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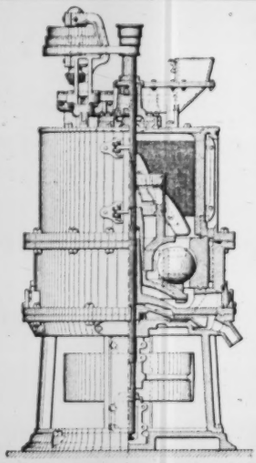

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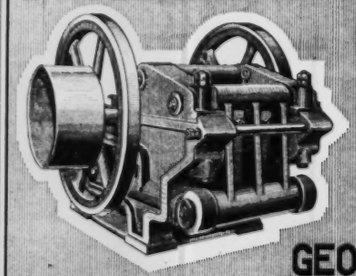

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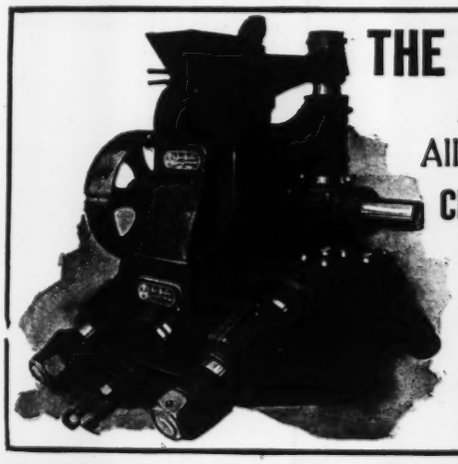

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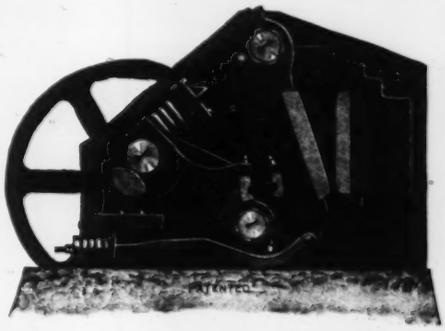

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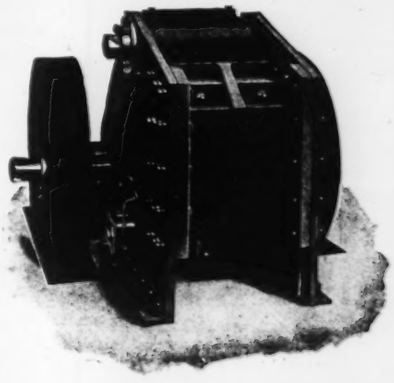

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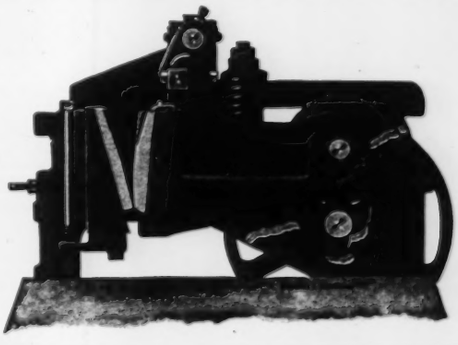

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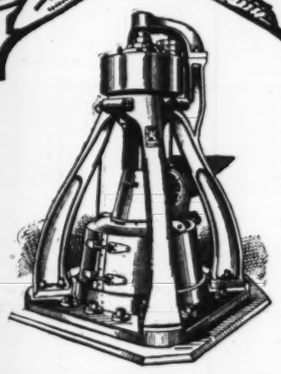

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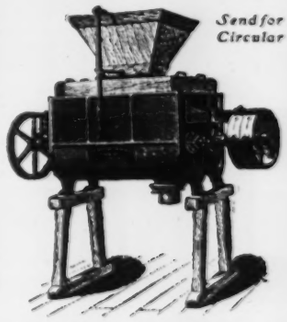

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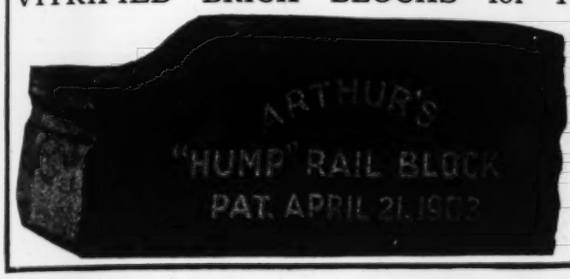

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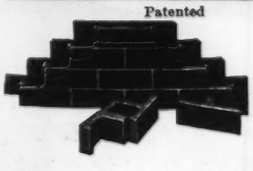

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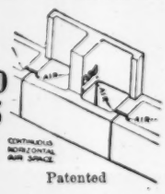

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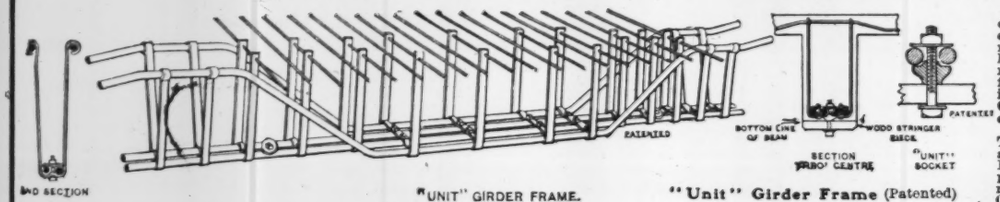

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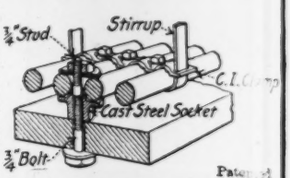

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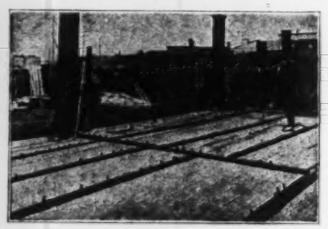

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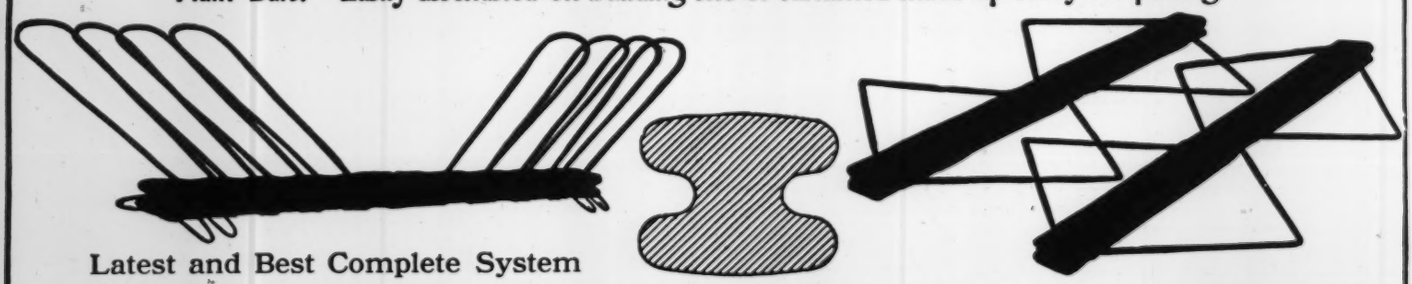

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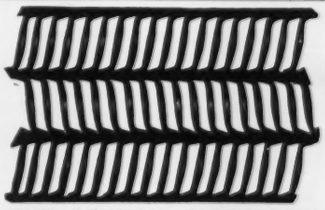

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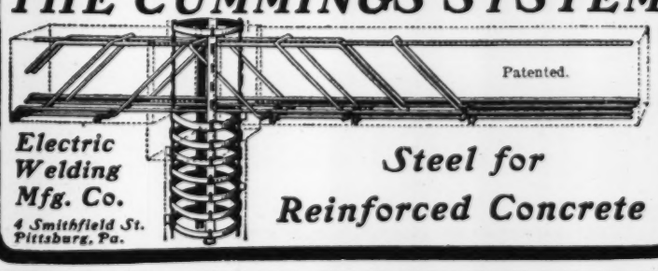

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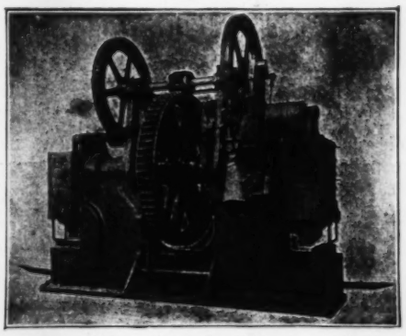

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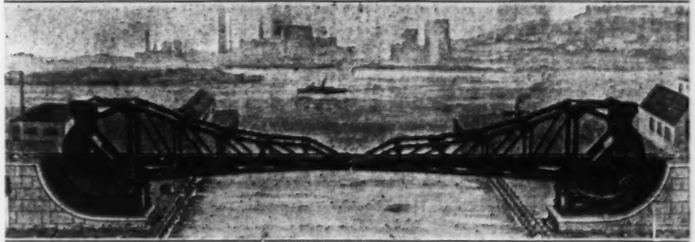

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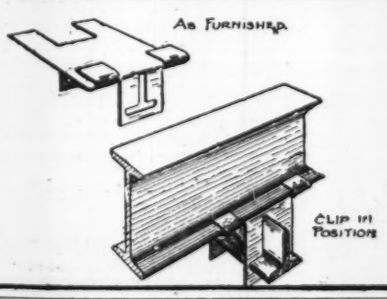

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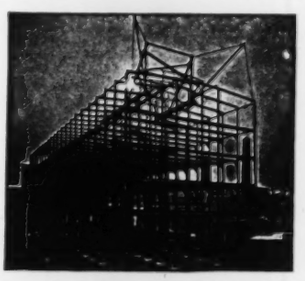

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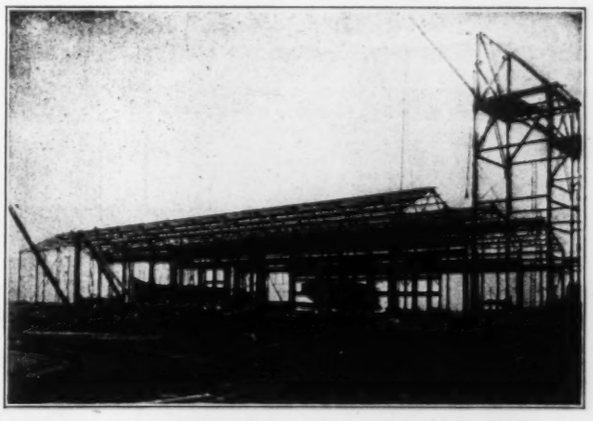

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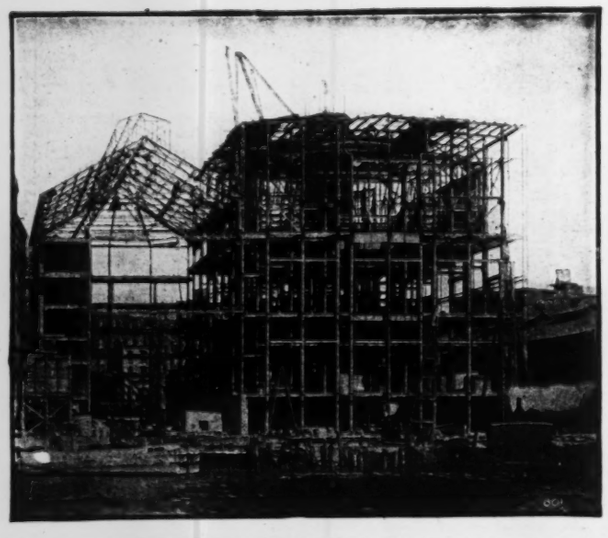

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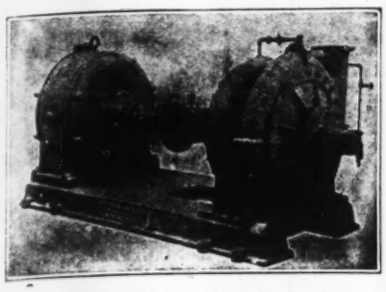

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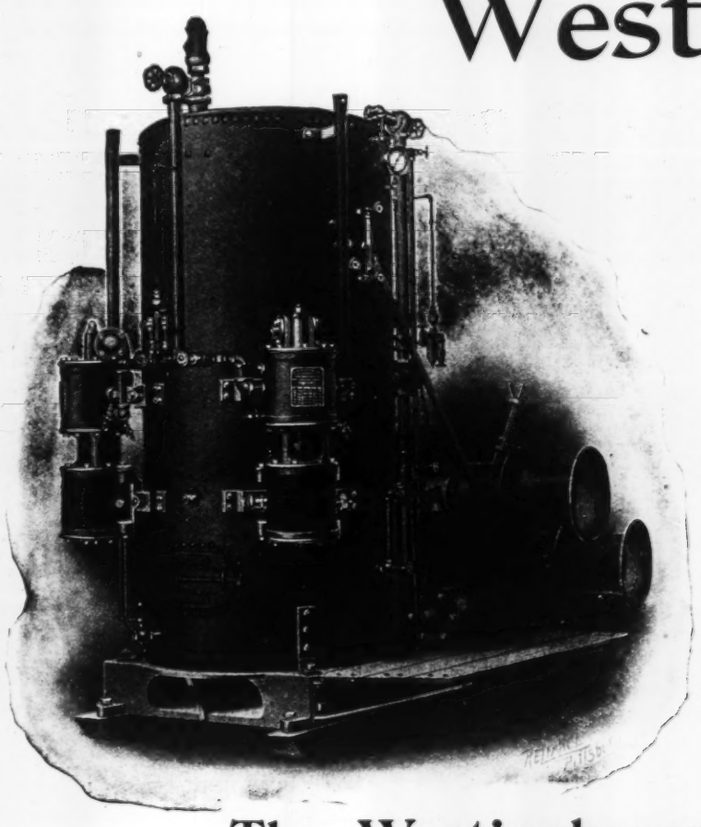

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